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FOR YOUR INFORMATION - TO HELP YOU DECIDE WHETHER TO
PARTICIPATE IN THIS RFT AND THEN BECOME A PROSPECTIVE
TENDERER**

Please read and Note:

This file is provided on the Commerce tenders web site when the Request For Tender (RFT) document is issued in Dmax Lite format.

This file contains (below) a brief scope statement and extracts from the RFT documents, but is not a complete RFT document and does not contain the responsible questions.

To participate in this tendering process you MUST first return to the Commerce tenders web site:

<https://tenders.nsw.gov.au/commerce>

Then from the RFT web page (see RFT number below) download a full copy of the RFT documents, including the responsible components, and also any addenda issued to date; and also during the tender period.

Copy/Save the RFT documents to your own computer drive or network location – the blue “DOWNLOAD A SOFT COPY” link at the bottom provides access to the page from which you can do this.

DmAX Lite Software

You will need to have a current licensed copy of the Dmax Lite 5.1 software to read, complete, and respond to the RFT with your tender. If you do not currently have such a licensed copy it can be optionally purchased and downloaded when downloading the full RFT documents from the tenders web site.



NSW Procurement – Contracting Services is a Business Unit of the NSW
Department of Commerce

**NSW Procurement – Contracting Services invites this tender for and on
behalf of the
NSW Government State Contracts Control Board**

Request for Tender 0702186
Contract 813 – Supply of Power Pumping Units
for NSW Fire Brigades and NSW Rural Fire
Service
1 December 2008 to 30 November 2011

Tender Issue Date: 11 August 2008

Closing Date: 10 September 2008

Closing Time: 9:30 am Sydney Time

Note: In order to respond to this RFT tenderers must have a current licence for i-Tenders Supplier software. Licences can be purchased through NSW eTendering website: www.tenders.nsw.gov.au at a cost of \$110 (inclusive of GST) for a 12 month annual licence. This provides access to respond to tenders developed in the i-Tenders application. It is anticipated that most RFTs released by the Board and the NSW Government will be in this format.

For help on purchasing your software, or use of application, please contact NSW Procurement Client Support Centre on 1800 NSW BUY (679 289) or NSWP_Support@Commerce.nsw.gov.au.

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For the purposes of this RFT, inquiries should be directed to the Contact Officer nominated in Part A of this RFT.

Other matters should be directed to:

Group General Manager
NSW Procurement – Contracting Services
NSW Department of Commerce
McKell Building
2-24 Rawson Place
Sydney NSW 2000
Tel: (02) 9372 7504
Fax: (02) 9372 7533

Supply of Power Pumping Units

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REQUEST FOR TENDER - PART A – OVERVIEW

1 Outcome

This Request for Tender (“RFT”) is made by the State Contracts Control Board (the “Board”) for the supply to Eligible Customers of the Deliverables defined in the Statement of Requirements of this RFT.

The Board is responsible for the delivery of the tender process, assisted by NSW Procurement – Contracting Services.

The key outcome of this RFT is to provide an innovative, purchasing and distribution framework (through the proposed Agreement) for the required Deliverables which meets the needs of the Eligible Customers.

2 Objectives

The objectives of the proposed Agreement in achieving the desired outcome, includes, but is not limited to the following:

- (a) Reduce the total cost of the Deliverables;
- (b) Provide Deliverables which are commercially competitive;
- (c) Establish a sustainable partnership between the Eligible Customers and the successful tenderer(s) to deliver quality Deliverables;
- (d) Best practice through continual review of delivery methods i.e value-engineering;
- (e) Effective management of risks;
- (f) Compliance with all applicable laws, standards, codes and policies;
- (g) To drive automation in procurement for greater efficiency and information management.

3 Required Benefits

The required benefits to be achieved in delivering the objectives of the proposed Agreement are:

- (a) A sustainable, mutually beneficial supply chain partnership;
- (b) Savings and efficiency gains;
- (c) Reduced costs to NSW Government by value-engineering its delivery methods;
- (d) Increasing the number of Eligible Customers which procure the Deliverables under the proposed Agreement;
- (e) Transparency of all transactions, including performance measurement, pricing and reporting;
- (f) Expanded utilisation of electronic procurement across NSW Government to drive efficiency and transparency through systems such as smartbuy®, e-Tendering, TenderMax etc.

4 Scope of RFT

4.1 Deliverables

The purchasing and distribution of the following Deliverables are covered under the proposed Agreement:

Fire Fighting Pumping Units:

- Class 1 Fire Fighting Pump (Diesel Powered) 12v Electric Start
- Class 2 General Purpose (Diesel Powered) 12v Electric Start

- Class 2 General Purpose (Diesel Powered) 24v Electric Start
- Class 3 Tanker Type (Diesel Powered) 12v Electric Start
- Class 3 Tanker Type (Diesel Powered) 24v Electric Start
- Class 4 Village Protection (Diesel Powered) 12v Electric Start
- Class 4 Village Protection (Diesel Powered) 24v Electric Start
- Class 5 Structural PTO Driven
- Class 6 Ultra Light Petrol Recoil Start
- Class 7 Portable Petrol Recoil Start
- Class 8 Fast Fill Petrol Powered Recoil Start
- Pre-Cleaner Option for Diesel Engines
- NSW Fire Brigade Pump Manual Start

A detailed description of the Deliverables is described in the Statement of Requirements (RFT, Part F).

Contractors must be proactive in marketing their Deliverables to Eligible Customers.

4.2 Contract and Duration

The proposed Agreement which is in the form of a Deed of agreement (RFT, Part D) is between the Board and the successful tenderer(s).

It is envisaged that the term of the proposed Agreement will be of 3 years, which may be extended for 2 years at the discretion of the Board.

4.3 Current Scope and Expenditure

The current expenditure incurred by government agencies for the procurement of the Deliverables is \$ 2million/year. This amount is provided for information only and does not constitute a guarantee for future work through the proposed Agreement.

4.4 Engagement of Additional Contractors

The Board reserves the right to appoint more than one Contractor under the proposed Agreement.

The Board further reserves the right to issue a restricted RFT during the term of the Agreement to engage additional Contractors. Such RFTs will be restricted to those tenderers who have been awarded agreements for the supply of Deliverables for Categories covered by this RFT but not included in the Agreement. The tenderers will have to meet the same terms and conditions and will be subjected to the same evaluation criteria as for this RFT.

4.5 NSW Government requirements

The successful tenderer must comply with NSW Government codes, guidelines, and Standards listed in Schedule 1 of Part D.

5 RFT Structure

This RFT is structured in the TenderMax Pro format. TenderMax Pro is an e-sourcing application designed to fully automate the traditional paper-based tendering process introducing best practice processes in electronic tender production, submission and evaluation to improve a tender submission, evaluation and award phases.

This RFT comprises 5 Parts as follows:

Overview – Part A

It is an executive summary of main outcomes, objectives, requirements and expectations for this Agreement as described in detail in the proposed Agreement and the Statement of

Requirements. It provides the tenderer(s) with the essential information to make an informed decision on whether to tender or not.

Conditions of Tender – Part B

It provides the terms, conditions and processes governing the tender phase of the RFT.

Tender Response – Part C

These are response schedules which are required by the Board to evaluate the tenderers' offers. Tender responses to be completed by the tenderer(s) are in the TenderMax format.

Deed of Agreement - Part D

This is the conditions of contract to be executed between the successful tenderer/s and the Board.

Special Conditions – Part E

Not Used.

Statement of Requirements – Part F

A detailed description of the Deliverables to be provided by the successful tenderer/s including technical specification, service levels and performance framework. It will form part of the Agreement to be executed between the successful tenderer/s and the Board.

6 Best Price and Cost Structure

Tenderers are encouraged to provide their best price(s) with their tender. Whilst the Board reserves the right to negotiate pre award, such negotiations may not occur and it is not the Board's preference.

It is important that tenderers realise that they may not be short-listed for further consideration, if they do not provide their best price with their initial tender.

This RFT seeks transparency in the tenderer's Cost Structure in the Tender Schedules (RFT, Part C) and is required to be fully completed by tenderer/s to:

- Provide the Board with transparency of the tenderer's Cost Structure;
- Price future variations, if applicable.

The tenderer's Cost Structure will be linked to the performance framework under the proposed Agreement.

The Board expects the successful tenderer(s) to reduce its pricing during the term of the proposed Agreement by:

- (a) Continually improving delivery processes to improve efficiency;
- (b) Providing lower prices and discounts for large/bulk purchases;
- (c) Passing on the benefit of rebates received from its own suppliers to Eligible Customers;
- (d) Matching prices as identified/recommended from the benchmarking process;
- (e) Other methods of savings identified during the term of the proposed Agreement;
- (f) Price matching as identified by customers;
- (g) Presenting and adopting NSW government, or any other, electronic procurement systems to reduce the cost of doing business with customers.

7 Benchmarking

Benchmarking with other suppliers within the market place is a potential price-management mechanism under the proposed Agreement.

An independent benchmarking service provider may be engaged to compare prices of the Deliverables with other comparable products available in the market place. The benchmarking service provider will be mutually agreed by the Board and successful tenderer/s.

Benchmarking may be undertaken by the benchmarking service provider after the first anniversary of the proposed Agreement and at 12 monthly intervals thereafter.

8 Performance Framework

The Board is committed to engaging contractors who are able and willing to continually improve their performance during the term of the proposed Agreement.

The performance framework within the proposed Agreement provides both incentives for good performance and sanctions for poor performance.

Performance incentives and sanctions are based on the Contractor's performance as measured by an Overall Performance Indicator (OPI). Both Contracting Services (monitor the Key Performance Indicators – KPI) and Customers (monitor the Agency Performance Indicators – API) will provide data to establish the OPI. The Statement of Requirements (RFT, Part F) describes the performance framework in detail and the measurement/targets of all performance indicators.

Typical incentives and sanctions that may be used by the Board include, but are not limited to :

- (a) Additional or reduced performance reporting requirements;
- (b) Temporary suspension of all or parts of a proposed Agreement for a period not exceeding 12 months;
- (c) Scope variation ie. inclusion of additional Products/reduction;
- (d) Extensions of the proposed Agreement (if available);
- (e) Non payment of price variations.

9 Customer Contract Formation

Eligible Customers will place orders against the proposed Agreement based on the contracted pricing and the Statement of Requirements. Each time an Eligible Customer places an order, a separate contract will be formed.

Eligible Customers will provide feedback to the Board on the performance of all Contractors.

10 Electronic Business

The use of electronic commerce is a mandatory requirement under this Agreement. Further details are included in the sample Agreement (RFT, Part D) and the Statement of Requirements (RFT, Part F).

The use of NSW government electronic procurement systems (smartbuy®, e-Tendering, TenderMax) is a mandatory requirement under this Agreement. Tenderers are encouraged to present similar electronic solutions that can further support expanding adoption of electronic procurement by NSW government agencies and their suppliers.

Supply of Power Pumping Units for NSW Fire Brigades and NSW Rural Fire Service

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PART B Conditions of Tender

1 Definitions

Unless the context indicates otherwise, the following terms, where used in Parts A-C of this RFT, shall have the meanings set out below.

“ABN” means an Australian Business Number as provided in GST law.

“Addendum” means an addition to this RFT made by the Board made before Closing Date and Time.

“Agreement” means an agreement made by a tenderer with the Board pursuant to the RFT under which there is an Agreement for the provision of goods and services on the order of any Customer for whom the Board has arranged the contract. The Agreement will be embodied in a Deed of Agreement between the Board and the Contractor in the form of Part D (and Part E if applicable) to this RFT.

“Alternative Tender”

A Non-Conforming Tender that is intended to offer a different method of meeting the object and intent of the requirement.

“Board”

The State Contracts Control Board established under the *Public Sector Employment and Management Act 2002* whose responsibilities include:

- (a) Inviting and accepting tenders;
- (b) Determining the conditions under which tenders are invited or accepted;
- (c) Entering into contracts on behalf of the Crown in right of the State of New South Wales; and
- (d) On-going contract administration and management, and includes the duly authorised delegates of the Board, including officers of NSW Procurement – Contracting Services.

“Category” means generic categories comprising of multiple Products inclusive of the associated services for its supply.

“Closing Date and Closing Time” means the Closing Date and Time for receipt of tenders specified in the cover sheet of this RFT.

“Code” means the NSW Government Code of Practice for Procurement as amended from time to time, together with any other codes of practice relating to procurement, including any amendments to such codes that may be applicable to the particular RFT. The Code can be viewed and downloaded from: http://www.treasury.nsw.gov.au/procurement/pdf/code_of_prac-curr.pdf

“Conforming Tender” means a tender that conforms in all material aspects to:

- (a) the Statement of Requirements;
- (b) the terms and conditions of Part D;
- (c) other parts of this RFT; and
- (d) is in the prescribed form.

“Contractor” means a tenderer who has entered into an Agreement with the Board.

“Cost Structure” means the individual tenderer's cost breakdown in accordance with the number of product categories specified in Part C. Such breakdown must equate to 100% of the tenderer's cost for the supply of the Deliverables.

“Customer Contract” means the contract that is made between the Contractor and an Eligible Customer, on the terms and conditions stated in clause 3.3 of Part D, by means of the placing of an order by the Eligible Customer with the Contractor.

“Deed” means a form in which a contract can be recorded which requires execution under the parties' seal.

“Deliverables” means the goods and services or the goods or services sought under this RFT, as detailed in the Statement of Requirements.

“Eligible Customer” means

- (a) An entity listed in Schedule 1 to the *Public Sector Employment and Management Act 2002* as amended from time to time;
- (b) A public body as defined by clause 18(4) of the *Public Sector Management (Goods and Services) Regulation 2000* being:
 - (i) a government trading enterprise (including a State owned corporation),
 - (ii) a public or private hospital (including an area health service),
 - (iii) a local government agency,
 - (iv) a charity or other community non-profit organisation,
 - (v) a public or private school or a college or university,
 - (vi) a public authority of this State, the Commonwealth or any other State or Territory,
 - (vii) a contractor to a public authority (but only in respect of things done as such a contractor),
 - (viii) a Nominee Purchaser provided that it satisfies the requirements of clause 3.6 of Part D (Agreement), and
 - (ix) such other persons or entities, which the Board may from time to time in its discretion, determine through a customer registration process.

“GST” means a goods and services tax and has the same meaning as in the GST Law.

“GST Law” means any law imposing a GST and includes *A New Tax System (Goods & Services Tax) Act 1999* (C'th) or if that Act does not exist, means any Act imposing, or relating, to a GST and any regulation made under those Acts.

“GST Free Supplies” and **“Input Taxed Supplies”** have the same meaning as in the GST Law.

“Nominee Purchaser” means a contractor to an Eligible Customer, nominated by the Eligible Customer to be authorised to place orders under Agreements and registered by NSW Procurement – Contracting Services.

“Non-Conforming Tender” means a tender that does not conform in all material aspects to:

- (a) the Statement of Requirements;
- (b) the terms and conditions of Part D;
- (c) other Parts of this RFT;
- (d) is not in the prescribed form.

“NSW Procurement - Contracting Services” A business unit of the NSW Department of Commerce representing the Board and authorised to arrange and administer contracts on behalf of the Board.

“Product” means an individual line item within a generic Category of products inclusive of the associated services for its supply and delivery.

“smartbuy®” means an electronic market place, consisting of an internet web site and associated databases and applications, maintained on behalf of the NSW Government, located at <http://smartbuy.nsw.gov.au> and associated domains.

“Statement of Requirements” means the detailed description of the goods and services contained in Part F.

“State Contracts Control Board” is the Board.

“Supporting Items” means any product samples, models and other related items supplied by the tenderer in support of its tender, (but excludes printed matter).

2 Tender Preparation

2.1 Tenderer to inform itself

Before submitting its tender, a tenderer must:

2.1.2 Examine all information relevant to the risks and contingencies and other circumstances having an effect on its Tender; and

2.1.3 Satisfy itself:

(a) that the tender, including the tender price is correct; and

(b) that it is financially and practically viable for it to enter into and perform the proposed Agreement.

2.2 Assumptions made by Tenderer

Where a tenderer has made assumptions in preparing its tender, such assumptions must be set out in a supporting statement and submitted with the tender.

2.3 Not Used

3 Eligibility to Tender

3.1 Legal Entity of Tenderer

3.1.1 Tenders must be submitted by a legal entity or, if a joint tender, by legal entities, with the capacity to contract. The Board will only enter into an Agreement with such legal entity or entities.

3.1.2 The Board may ask a tenderer to provide evidence of its legal status or capacity to contract. If tenders from entities propose to contract in their capacity as trustees, such evidence may include copies of the relevant trust deeds. Any evidence requested is to be provided within 3 working days of the request.

3.2 Financial Capability of Tenderer

3.2.1 The Board reserves the right to reject any tender if the Board judges the tenderer not to have appropriate financial capability.

3.2.2 Where the Board forms the view that the tenderer does not have the appropriate financial capability, the Board reserves the right to make acceptance of any tender conditional upon the tenderer entering into a bank, parent company or personal guarantee, or an unconditional performance bond in a form satisfactory to the Board.

3.3 ABN Requirements

3.3.1 The Board will not enter into an Agreement with a company that does not have an Australian Business Number and is not registered for GST. Normally, tenderers must be registered for GST and state their ABN in their tender.

3.3.2 Tenders from tenderers that do not have an ABN and/or are not registered for GST, such as tenderers commencing business in Australia, may be considered at the Board's discretion if the tenderer demonstrates that it will obtain an ABN and GST registration before entering into an Agreement with the Board. Such tenderers must

state how and when they intend to obtain an ABN and register for GST in their tender response.

4 Tender Process

4.1 Not Used

4.2 Tenderer Briefing

- 4.2.1 A tenderer briefing will be held on the date, time, and place, indicated below. The contact officer/s of NSW Procurement – will be available at that time to answer any queries regarding this RFT and the tender process generally.

Location: NSW Rural Fire Service, 18 Carter Street, Homebush Bay»
Date: Wednesday 20 August 2008
Time: 10:00am

4.3 Contact Officer

- 4.3.1 Tenderers should refer requests for information or advice regarding this RFT to:

Name: Steve Diekman
Telephone: 02 93727524
Facsimile: 02 9372 7799
E-mail: Steve.diekman@commerce.nsw.gov.au

- 4.3.2 Any information given to a tenderer to clarify any aspect of this RFT will also be given to all other tenderers if in the Board's opinion the information would unfairly favour the inquiring tenderer over other tenderers.

4.4 Pre-Tender Access to Prospective Nominee Purchasers

- 4.4.1 A tenderer who wishes to become a Nominee Purchaser to an Eligible Customer under any existing NSW State Contracts Control Board Agreement, must apply to that Eligible Customer to be granted temporary viewing access to view the relevant Board Agreements on smartbuy®. The procedure is described in the link below. The purpose of such pre tender access is to enable tenderers who wish to do so, to price the products and services at Board rates and confer any benefit in their tender to the Eligible Customer. The information must not be used for any other purpose.

- 4.4.2 A tenderer seeking pre tender access must complete the Pre-Tender Access Application Form indicated through the link below. The Eligible Customer will determine, in its sole discretion, whether the tenderer's application will be recommended. In the exercise of this discretion, the Eligible Customer will ensure that decisions made are applied consistently to all applicants. Recommended applications will be submitted by the Eligible Customer to NSW – Contracting Services for approval.

- 4.4.3 If the tenderer is successful in its tender, it must apply to become a Nominee Purchaser. <http://www.contractservices.nswp.commerce.nsw.gov.au/Publications/Forms.htm#nominee>

4.5 Conformity of Tenders

- 4.5.1 The Board seeks Conforming Tenders.
- 4.5.2 Non-Conforming Tenders may be excluded from the tender process without further consideration at the Board's discretion.

4.6 Alternative Tenders

- 4.6.1 Tenderers may, if they choose, submit an Alternative Tender. Alternative Tenders will only be considered if submitted in conjunction with a Conforming Tender. An Alternative Tender must be clearly marked "Alternative Tender".

4.7 Submission of Tenders

- 4.7.1 Prices, responses and other information provided in the tender are to be in writing and in English.
- 4.7.2 Tenderers must complete all of Part C of this RFT, as directed and must not amend any of the questions provided.
- 4.7.3 Tenderers should notify the Contact Officer in writing on or before the Closing Date and Time if they find any discrepancy, error or omission in this RFT.
- 4.7.4 All tenders must be provided in the TenderMax Pro format, using the DMax Lite software. The tender responses in Part C must be included in one or more files with an extension of *.dtr. The DMax Lite software is only supported on a Microsoft Windows 9X and above operating system; other operating systems are not compatible. Tenderers must ensure a Microsoft Windows compatible computer is used to prepare the tender.
- 4.7.5 When submitting an electronic tender with Supporting Items:
- (a) The complete tender, including the Supporting Items must be submitted by Closing Date and Closing Time, and
 - (b) Supporting Items should be clearly designated as Supporting Items to the RFT to which they relate and be forwarded to the Contact Officer indicated in clause 4.3 of this RFT in a sealed envelope.
- 4.7.6 Tenderers must ensure that all excel or word attachments can be opened and viewed by Microsoft Excel 2003 or Microsoft Word 2003. Other formats for the attachments are only to be submitted if an arrangement has first been made with the Contact Officer prior to lodgment of the tender.

4.8 Electronic Tenders to the NSW Department of Commerce *eTendering* website

- 4.8.1 A tenderer is required to lodge its tender electronically through the NSW Department of Commerce *eTendering* website at <https://tenders.nsw.gov.au/commerce>. A tender submitted electronically will be treated in accordance with the *Electronic Transactions Act 2000* (NSW), and given no lesser level of confidentiality, probity and attention than tenders lodged by other means.
- 4.8.2 A tenderer, by electronically lodging a tender, is taken to have accepted conditions shown in the Conditions and rules on the NSW Department of Commerce *eTendering* website.
- 4.8.3 A tenderer must follow the following directions:
- (a) A RFT for which electronic lodgment is available through the website can be identified by the blue "Lodge a Response" link on the web pages for the RFT.
 - (b) To lodge a tender electronically, the files containing the tenderer's response must be up-loaded through the website. Access to the up-loading process is through the blue "Lodge a Response" link, then following the steps and instructions on the NSW Department of Commerce *eTendering* website and any instructions which may have been supplied with the RFT.
- 4.8.4 A tenderer must observe the following format for lodgements:
- (a) An electronically lodged tender must be lodged in a file format required by the RFT.
 - (b) If a tenderer compresses files, it must be possible to decompress them using WinZip. A tenderer must not submit self-extracting (*.exe) zip files.

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- (c) A tenderer must not change pre-existing text in the RFT other than to insert the required information.
 - (d) The file/s name/s must have an extension and not have invalid characters or file names/loading pathnames too long for the system, as detailed on the NSW Department of Commerce *eTendering* website.
 - 4.8.5 Signatures are not required for a tender submitted to the NSW Department of Commerce *eTendering* website. A tenderer must ensure that a tender response is authorised by the person or persons who may do so on behalf of the tenderer and appropriately identify the person and indicate the person's approval of the information communicated.
 - 4.8.6 Electronically submitted tenders may be made corrupt or incomplete, for example by computer viruses. The Board may decline to consider for acceptance a tender that cannot be effectively evaluated because it is incomplete or corrupt. Tenderers must note that:
 - (a) To reduce the likelihood of viruses, a tenderer must not include any macros, applets, or executable code or files in a tender response.
 - (b) A tenderer should ensure that electronically submitted files are free from viruses by checking the files with an up to date virus-checking program before submission.
 - 4.8.7 If a tenderer experiences any persistent difficulty with the NSW Department of Commerce *eTendering* website in submitting a tender or otherwise, it is encouraged to advise the Contact Officer promptly in writing.
 - (a) If there is a defect or failure of the NSW Department of Commerce *eTendering* website and the Board is advised, the tender Closing Date and Closing Time may be extended provided that, in the view of the Board, the RFT process will not be compromised by such an extension.
 - (b) Tenders must be fully received by the Closing Date and Closing Time.
 - 4.8.8 A tender lodged via the NSW Department of Commerce *eTendering* website should ideally be below 7 megabytes (MB) in total file size. Responses totalling more than 7MB may experience difficulties in lodgement. In this case tenderers may break down the lodgement into smaller packages if clearly identified eg. package 1 of 3; 2 of 3; 3 of 3.
 - 4.8.9 If a tenderer provides multiple lodgements, the latest tender received will be the tender to be evaluated.
 - 4.9 Tender Validity Period**
 - 4.9.1 The Tender will remain open for acceptance by the Board for a period of months from the Closing Date and Time for tenders.
 - 4.10 Late Tenders**
 - 4.10.1 Late tenders should not be considered, except where the Board is satisfied that the integrity and competitiveness of the tendering process has not been compromised. The Board shall not penalise any supplier whose tender is received late if the delay is due solely to mishandling by the Board.
 - 4.11 Extension of Closing Date and Time**
 - 4.11.1 The Board may, in its discretion, extend the Closing Date and Time.
 - 4.12 Corruption or Unethical Conduct**
 - 4.12.1 Tenderers must comply with the requirements of the Commerce Business Ethics Statement, which is available at the link below and must disclose any conflicts of interests in Part C.
 - 4.12.2 If a tenderer, or any of its officers, employees, agents or sub-contractors is found to have:

-
- (a) offered any inducement or reward to any public servant or employee, agent or subcontractor of the Board, Customer or the NSW Government in connection with this RFT or the submitted Tender;
 - (b) committed corrupt conduct in the meaning of the *Independent Commission Against Corruption Act 1988*;
 - (c) a record or alleged record of unethical behaviour; or not complied with the requirements of Commerce Business Ethics Statement available at: <http://www.commerce.nsw.gov.au/About+Commerce/Business+ethics+statement/Business+ethics+statement.htm>;

this may result in the tender not receiving further consideration.

- 4.12.3 The Board may, in its discretion, invite a relevant tenderer to provide written comments within a specified time before the Board excludes the tenderer on this basis.
- 4.12.4 If the Board becomes aware of improper conflict of interests by a successful tenderer after an Agreement has been executed, then the Board reserves the right to terminate the Agreement and any Customer Contract that has been made under it.

4.13 Code of Practice for Procurement

- 4.13.1 In submitting its tender, the tenderer signifies agreement to comply with the Code.
- 4.13.2 Failure to comply with the Code may be taken into account by the Board when considering the tenderer's tender or any subsequent tender, and may result in the tender being passed over.

4.14 Prescribed Form of Tender

The tender, including any Alternative Tender, must comprise a completed Part C and any attachments to Part C, as may be necessary. Any attachments should be labelled to identify those clauses of the RFT to which they relate.

4.15 Addenda to RFT

- 4.15.1 If, for any reason the Board, at its sole discretion, requires the RFT to be amended before the Closing Date and Time, an Addendum will be issued.
- 4.15.2 In each case, an Addendum becomes part of the RFT.
- 4.15.3 The Board, during the tender period may issue Addenda altering the RFT. In such cases, it is the obligation of the tenderer to verify if any Addenda were issued prior to the Closing Date, even if a tender has already been submitted.
- 4.15.4 Tenderers must check the web site address, <https://tenders.nsw.gov.au/commerce> and download the Addendum.

4.16 Tenderer's Costs

The tenderer acknowledges that the Board will not be liable to it for any expenses or costs incurred by it as a result of its participation in this RFT, including where the RFT has been discontinued.

4.17 Custody of Tenders after Receipt

- 4.17.1 Tenders lodged electronically to the NSW Department of Commerce Tenders website will be treated in accordance with the *Electronic Transactions Act 2000* (NSW) and given no lesser level of confidentiality, probity and attention than tenders lodged by other means.
- 4.17.2 On receipt of tenders lodged electronically to the NSW Department of Commerce eTendering website, Tenders are encrypted and stored in a secure "electronic tender box."

4.17.3 For reasons of probity and security, NSW Department of Commerce is prevented from interrogating the electronic tender box to ascertain whether tenders have been received or for any reason, until after the Closing Date and Closing Time.

4.17.4 The e-mail receipt that is sent to the tenderer after successfully up-loading and lodging the tender electronically is the only evidence of tender lodgement provided.

4.18 Ownership of Tenders

4.18.1 All tenders become the property of the Board on submission.

4.18.2 The Board may make copies of the tenders for any purpose related to this RFT.

4.19 Discontinuance of Tender Process

4.19.1 Where the Board determines that awarding a contract would not be in the public interest, the Board reserves the right to discontinue the tender process at any point, without making a determination regarding acceptance or rejection of tenders.

4.20 Variations to Tenders

4.20.1 At any time after the Closing Date of tenders and before the Board accepts any tender received in response to this RFT, a tenderer may, subject to clause 4.20.2, vary its tender:

- (a) by providing the Board with further information by way of explanation or clarification;
- (b) by correcting a mistake or anomaly; or
- (c) by documenting agreed changes to the tender negotiated under clause 5.5 of this Part B.

4.20.2 Such a variation may be made either:

- (a) at the request of the Board, or
- (b) with the consent of the Board at the request of the tenderer; but only if,
 - (i) in the case of variation requested by the tenderer under clause 4.20.1(a)-(b), it appears to the Board reasonable in the circumstances to allow the tenderer to provide the information or correct the mistake or anomaly; or
 - (ii) in the case of variation under clause 4.20.1(c), the Board has confirmed that the draft-documented changes reflect what has been agreed.

4.20.3 If a tender is varied in accordance with clause 4.20.1(a) or (b), the Board will provide all other tenderers whose tenders have similar characteristics with the opportunity of varying their tenders in a similar way.

4.20.4 A variation of a tender under clause 4.20.1 will not be permitted if in the Board's view:

- (a) it would substantially alter the original tender; or
- (b) in the case of variation under clause 4.20.1(a) or (b), it would result in the revising or expanding of a tender in a way that would give a tenderer an unfair advantage over other tenderers.

5 Evaluation Process

5.1.1 Tenders will be assessed against the evaluation criteria listed below which are not indicated in order of significance or equal weight.

5.1.2 The evaluation criteria for this RFT that do not relate to price will account for (70)% of the total evaluation score. The evaluation criteria for this RFT that relate to price will account for (30)% of the total evaluation score.

-
- 5.1.3 Information supplied by the tenderer in Part C will contribute to the assessment against each criterion. Tenderers are advised to respond clearly to all the evaluation criteria listed in this RFT.
- 5.1.4 Tenders that do not include a fully completed Part C, in particular those tenders which do not contain sufficient information to permit a proper evaluation to be conducted, or electronic tenders that cannot be effectively evaluated because the file has become corrupt, may be excluded from the tender process without further consideration at the Board's discretion.
- 5.1.5 The Board may assess an Alternative Tender against the evaluation criteria where submitted with a Conforming Tender.

5.2 Evaluation Criteria

The evaluation criteria for this RFT (which include but are not limited to) are:

- (a) Fitness for purpose including quality, range of products, innovative aspects, product design and performance, and degree of compliance with technical requirements;
- (b) Price;
- (c) Delivery requirements (including proposed lead times);
- (d) Capacity to perform the Agreement including:
 - (i) Production capacity/capability and previous experience and performance in provision of similar/identical goods;
 - (ii) Human resource capacity, qualifications, skills and experience;
 - (iii) Financial capacity and stability (including security considerations);
 - (iv) Maintenance, support service levels & warranties;
 - (v) Quality assurance systems;
 - (vi) Suitability of sub-contractors;
 - (vii) OH&S systems;
- (e) Compliance with the proposed conditions of Part D.
- (f) Compliance with NSW Government procurement policy and other applicable NSW Government policies, including:
 - (i) SME involvement;
 - (ii) Regional development activity;
 - (iii) Innovation, research and development;
- (g) Compliance with relevant legislation and standards.
- (h) Capacity and capability to facilitate electronic commerce through smartbuy®.
- (i) Compliance with the Statement of Requirements.

5.3 Presentations by Tenderer

- 5.3.1 The Board, may in its discretion, and as part of the evaluation process, invite any or some of the tenderers to make personal presentations regarding their tender.
- 5.3.2 Receiving a presentation by a tenderer in no way represents a commitment by the Board to accept any aspect of the tender.

5.4 Acceptance or Rejection of Tenders

- 5.4.1 The Board may assess an Alternative Tender against the evaluation criteria when submitted with a Conforming Tender.
- 5.4.2 The Board expressly reserves the right to accept, in its discretion, either or both of the following:

-
- (a) Any Alternative Tender or part of an Alternative Tender, when submitted with a Conforming Tender; and
- (b) Any other Non-Conforming Tender or part of a Non-Conforming Tender (not, in either case, being an Alternative Tender or part of an Alternative Tender) that, in the Board's opinion, is substantially a Conforming Tender.
- 5.4.3 The Board is not bound to accept the lowest tender.
- 5.4.4 If the Board rejects all the tenders received it may invite fresh tenders based on the same or different criteria (specifications and details contained in Alternative Tenders will not be used as the basis for the calling of new tenders).
- 5.5 Post Tender Negotiations**
- 5.5.1 Before making any determination as to acceptance or rejection of Tenders the Board may, at its discretion, elect to conduct limited negotiations with preferred tenderers, including those who have submitted Alternative Tenders or who have submitted Conforming Tenders, to mutually improve outcomes.
- 5.5.2 The Board will generally not enter into negotiations to amend standard conditions of contract contained in Part D.
- 5.5.3 If the Board considers that none of the tenders are fully acceptable either due to the level of non-conformance or because they do not represent sufficient value for money, but considers that full conformity is achievable, negotiations may be conducted with the tenderer that submitted the most conforming tender based on the evaluation criteria. The purpose of the negotiations will be advised by the Board and made clear to the participants before the commencement of negotiation.
- 5.5.4 The Board may at its absolute discretion elect to conduct post tender negotiations under clause 5.5.3 with more than 1 tenderer in the event that it decides that the closeness of the tenders or timing constraints warrants doing so.
- 5.6 Exchange of Information between Government Agencies**
- 5.6.1 Lodgement of a tender will itself be an authorisation by the tenderer to the Board to make available, on request, to any NSW government agency information, including but not limited to, information dealing with the tenderer's performance on any contract that may be awarded. Such information may be used by the recipient NSW Government agency for assessment of suitability for pre-qualification, selective tender lists, expressions of interest or the award of a contract or termination of contract.
- 5.6.2 The provision of the information by the Board to any other NSW Government agency is agreed by the tenderer to be a communication falling within section 30 of the *Defamation Act 2005* (NSW), and the tenderer shall have no claim against the Board and the State of New South Wales in respect of any matter arising out of the provision or receipt of such information, including any claim for loss to the tenderer arising out of the communication
- 5.6.3 In the evaluation of tenders, the Board may take into account any information about the tenderer that the Board receives from any source.
- 5.6.4 To avoid doubt, information that may be collected, exchanged and used in accordance with this provision includes "personal information" about the tenderer for the purposes of the *Privacy and Personal Information Protection Act 1998*. Lodgement of a tender will be an authorisation by the tenderer to the Board to collect such information from third parties, and to use and exchange such information in accordance with this clause 5.6.
- 5.6.5 The tenderer's attention is drawn to the *Freedom of Information Act 1989* which obliges disclosure of the contract documents resulting from the tender and may confer rights, subject to the terms of that Act, to access, and to require the correction of, information held by certain agencies, including tenders held by the Board. A summary of the provisions is contained in Annexure 1 to Part B (Disclosure Information).

6 Method of Acceptance

- 6.1.1 Acceptance of a tender or part tender will be subject to the execution of a formal Deed of agreement in the terms of Part D. Until the Board and the successful tenderer(s) execute a formal Deed or Deeds there will be no legally enforceable agreement concluded between them.

7 Disclosure Information

- 7.1.1 Following the Board's decision, all tenderers will be notified in writing of the outcome of their Tenders.
- 7.1.2 Details of tenderers and the outcome of the tender process will be disclosed in accordance with the *Freedom of Information Act 1989* and the NSW Government Tendering Guidelines, available at:
<http://www.dpws.nsw.gov.au/Government+Procurement/Procurement+Policy+Framework/NSW+Government+Tendering+Guidelines.htm>
- 7.1.3 An outline of these requirements can be found in Annexure 1 to Part B of this RFT.

8 Complaints Procedure

It is the NSW Government's objective to ensure that industry is given every opportunity to win Government contracts. Should any entity feel that it has been unfairly excluded from tendering or unfairly disadvantaged by the Conditions in Part D and/or Part E, or the Statement of Requirements in Part F, it is invited to write to:

Chairperson
State Contracts Control Board
Level 22, McKell Building
2-24 Rawson Place
Sydney NSW 2000

ANNEXURE 1 TO PART B (Disclosure of Information)

Disclosure of information concerning tenderers and outcome of the tender process

1. In accordance with the NSW Government Tendering Guidelines referred to in clause 7.1.2 and found at <http://www.dpws.nsw.gov.au/Government+Procurement/Procurement+Policy+Framework/NSW+Government+Tendering+Guidelines.htm>, the following **tender information** is required to be disclosed -

Tender Type	Level of disclosure	Basis of disclosure
For all public calls for tender, expressions of interest or other such public calls which may result in a contract with the private sector.	As a minimum: <ul style="list-style-type: none">a concise description of the proposed works, goods or services the subject of the tender call;the date responses to the tender call close and where responses are lodged; andlocation of the tender call documents. The names and addresses of all entities which submit responses.	Routine public disclosure at the time tender calls are advertised. Routine public disclosure within 7 days of the date tender calls closed.
In a multi-stage tender process.	The names and addresses of the shortlisted entities, except where such disclosure is likely to compromise the competitiveness of the subsequent tender process.	Routine public disclosure within 7 days of these entities being advised of their shortlisting.

2. In accordance with the NSW Government Tendering Guidelines referred to in clause 7.1.2, the following **contract** information is required to be disclosed -

Contract size and type	Level of disclosure	Basis of disclosure
Class 1 contracts All government contracts with estimated value \$150,000 or above.	<ul style="list-style-type: none">a) The name and business address of the contractor;b) Particulars of any related body corporate (within the meaning of the <i>Corporations Act 2001</i> of the Commonwealth) in respect of the contractor, or any other private sector entity in which the contractor has an interest, that will be involved in carrying out any of the contractor's obligations under the contract or will receive a benefit under the contract;c) The date on which the contract became effective and the duration of the contract;d) Particulars of the project to be undertaken, the goods or services to be provided or the real property to be leased or transferred under the contract;e) The estimated amount payable to the contractor under the contract;f) A description of any provisions under which	Routine public disclosure within 60 days after the contract becomes effective.

	<p>the amount payable to the contractor may be varied;</p> <p>g) A description of any provisions with respect to the renegotiation of the contract;</p> <p>h) In the case of a contract arising from a tendering process, the method of tendering and a summary of the criteria against which the various tenders were assessed; and</p> <p>i) A description of any provisions under which it is agreed that the contractor is to receive payment for providing operational or maintenance services.</p>	
<p>Class 2 contracts Class 1 contracts (i.e government contracts with estimated value \$150,000 or above) which also:</p> <ul style="list-style-type: none"> - result from a direct negotiation where there has not been a tender process; or - have been the subject of a tender process and where the final contract terms and conditions are substantially negotiated with the successful tenderer (this includes alliance type contracts); or - involve operation or maintenance obligations for 10 years or longer; or - involve a privately financed project as defined by relevant Treasury guidelines; or - involve a transfer of land or other asset to a party in exchange for the transfer of land or other asset to an agency. 	<p>The information required for class 1 contracts and:</p> <ul style="list-style-type: none"> a) Particulars of future transfers of significant assets to the State at zero, or nominal cost to the State, including the date of their proposed transfer; b) Particulars of future transfers of significant assets to the contractor, including the date of their proposed transfer; c) The results of any cost-benefit analysis of the contract conducted by the agency; d) The components and quantum of the public sector comparator if used; e) Where relevant, a summary of information used in the contractor's full base case financial model (for example, the pricing formula for tolls or usage charges); f) Where relevant, particulars of how risk, during the construction and operational phases of a contract to undertake a specific project (such as construction, infrastructure or property development), is to be apportioned between the parties, quantified (where practicable) in net present-value terms and specifying the major assumptions involved; g) Particulars as to any significant guarantees or undertakings between the parties, including any guarantees or undertakings with respect to loan agreements entered into or proposed to be entered into; and h) Particulars of any other key elements of the contract. 	<p>Routine public disclosure within 60 days after the contract becomes effective.</p>
<p>Class 3 contracts Class 2 contracts where the estimated value of the government contract is \$5 million or more.</p>	<p>The information for class 1 and 2 contracts and the complete contract, less confidential information.</p> <p>Note: if some or all of a class 3 contract is not disclosed for reasons of confidentiality, the agency is to disclose:</p> <ul style="list-style-type: none"> • the reasons for not publishing the contract 	<p>Routine public disclosure within 60 days after the contract becomes effective.</p>

	or provisions; <ul style="list-style-type: none"> • a statement as to whether the contract or provisions will be published and, if so, when; and • where some but not all of the provisions of the contract have been disclosed, a general description of the types of provisions that have not been published. 	
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3. Requests for disclosure of additional contract information

Tenderers must acknowledge that any person may make a specific request to the State Contracts Control Board for any item of contract information contained in schedules 1 or 2, or for a copy of a contract, which is not required to be routinely disclosed under section 15A of the *Freedom of Information Act 1989* ("FOI Act"). The State Contracts Control Board must provide the requested contract information or the requested copy of the contract to the requesting person (less any confidential information) within 60 days of receiving the request.

Where a copy of a contract has been requested and some or all of the contract is not provided for reasons of confidentiality, the State Contracts Control Board will disclose:

- the reasons for not providing;
- a statement as to whether the contract or provisions will be provided and, if so, when; and
- where some but not all of the provisions of the contract have been provided, a general description of the types of provisions that have not been provided.

4. Disclosure of amendments or variations to contract information under the FOI Act

The FOI Act requires that, if there is an amendment to the contract terms or a material variation made under the contract that changes information already routinely disclosed under the FOI Act, the State Contracts Control Board must ensure that the information concerning the change is routinely disclosed within 60 days after such amendment or variation becomes effective, less any confidential information. In the case of class 3 contracts, the full amendment or material variation, less any confidential information, must be disclosed within the 60 day timeframe.

5. Confidential information

None of the disclosure obligations contained in the FOI Act, or the requirements for disclosing tender information or a copy of a contract or information in relation to a contract under these guidelines, require the disclosure of:

- the commercial-in-confidence provisions of a contract (as defined in section 15A(14) of the FOI Act) (the contractor's financing arrangements; the contractor's cost structure or profit margins; the contractor's full base case financial model; any intellectual property in which the contractor has an interest; or any matter whose disclosure would place the contractor at a substantial commercial disadvantage in relation to other contractors or potential contractors, whether at present or in the future.);
- details of any unsuccessful tender;
- any matter that could reasonably be expected to affect public safety or security; or
- information which would be exempt from disclosure if it were the subject of an application under the Freedom of Information Act.

Where such confidential information is withheld, the State Contracts Control Board must inform the requesting person that access to that information may be sought in accordance with the Freedom of Information Act. This will enable a person seeking the information to have the appeal rights available under the FOI Act...

6. Tenderers are invited to nominate items they consider are confidential and why.



SPECIFICATION

PUMP - PORTABLE PETROL POWERED

SO-BFS-98/44-03703

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1 Scope

- 1.1 This specification details the technical requirements for a portable petrol powered pump as used by firefighters and Community Fire Unit (CFU) members within the New South Wales Fire Brigades (NSWFB) when conducting fire fighting, bushfire fighting, property protection and/or training functions.

Note: Nothing in this specification shall be construed to waive or modify any obligations imposed by the *Occupational Health and Safety Act 2000* or associated legislation, nor any regulation made under it.

2 Function

- 2.1 The NSWFB uses portable petrol powered pumps for structural fire fighting, bushfire fighting and property protection operations. Portable pumps are deployed when drawing water from:
- (a) static supplies, such as dams, streams, rivers, water tanks and swimming pools;
 - (b) first aid tanks of pumping appliances to give these appliances pump-and-roll capability;
- 2.2 The specification is based on the specific end user requirements of the NSWFB and not upon any particular manufacturer's product, other than as necessary to ensure a high level of operational compatibility with other equipment in use.

3 Construction

3.1 General

- 3.1.1 Because of the arduous conditions under which these items are used, the pump shall be required to be of a rugged construction, be simple to operate and be easily maintained.
- 3.1.2 The pump shall be able to be operated continuously for a minimum period of four (4) hours under the following conditions:
- (a) be able to tolerate, without any adverse effect on the pump casing, nozzle shut downs whilst operating at normal operating pressures;
 - (b) be capable of operating in a temperature range of -20 °C up to +60 °C.
- 3.1.3 The pump shall be constructed so as to enable it to be both compact and lightweight.
- 3.1.4 It must be capable of being fitted into a standard NSWFB modular steel roll

frame (see section 6) to enable it to be transported safely on a variety of NSWFB vehicles.

3.2 Motor

- 3.2.1 The motor shall be a four stroke petrol engine with a capacity of 5.5 hp (4 kW).
- 3.2.2 The motor shall operate on unleaded fuel and have a fuel tank reservoir capacity in excess of 3.0 L.
- 3.2.3 The motor shall be manually started via a start cord and shall have a cold start facility in the form of a manual choke.
- 3.2.4 The exhaust emissions shall not exceed for HC and NO₂ 10.0 grams/kilowatt hour, and for CO 549 grams/kilowatt hour.
- 3.2.5 The noise level at the pump shall be in accordance with the National Standard for Occupational Noise [NOHSC:1007(2000)].
- 3.2.6 Noise levels shall not exceed 85 dB(A) at one (1) metre from the pump, at a height of 1750 mm above ground level (1750 mm represents the average height of a NSWFB operator).

3.3 Pump and Pump Fittings

- 3.3.1 The pump shall be a single stage self priming design type and should be capable of priming at a maximum lift of three (3) meters.
- 3.3.2 The pump shall have the following minimum performance for a suction head of zero (0) metres:
 - (a) 400 l/min @ 100 kPa
 - (b) 350 l/min @ 200 kPa
 - (c) 300 l/min @ 300 kPa
 - (d) 200 l/min @ 400 kPa
- 3.3.3 The pump shall have the following inlets / outlets (ports):
 - (a) SUCTION INLET - 1 x 38 mm diameter;
 - (b) DELIVERY OUTLET - 2 x 25 mm diameter;
 - (c) DELIVERY OUTLET - 1 x 38 mm diameter;
 - (d) PRIMING PORT - 1 x 25 mm diameter.
- 3.3.4 The pump's delivery outlets and suction inlet shall be fitted with suitably sized Storz fittings (see DIN standard for Storz couplings) and shall be made of non corrosive material.

- 3.3.5 All Storz fittings shall be fitted with blank caps and these caps shall be secured to the pump by a chain.
- 3.3.6 The priming port may be either male or female BSP parallel thread which shall have a minimum diameter of 25 mm.
- 3.3.7 The priming port shall be fitted with a suitable threaded plug.
- 3.3.8 The priming port plug/cap shall be secured to the pump by a chain.
- 3.3.9 The fuel cap shall comply with the “Carb Tier 3” California Emission Regulation, and shall remain compatible with existing fuel caps in use by the NSWFB.

4 Storz Coupling

- 4.1 All couplings fitted to the portable pump’s outlets shall be Storz type only. The following couplings shall be used as standard:
 - (a) for 25mm outlets - Storz, 25mm nominal size (DIN 14301);
 - (b) for 38mm outlets - Storz, 38mm nominal size.
- 4.2 The torque required to couple and uncouple each coupling fitting (including blanking caps) shall be within the range of 1.5 - 7 Nm.

5 Dimensions/Weight

- 5.1 To enable the pump (complete with roll frame), to be effectively stowed on a fire fighting, rescue vehicle or community fire unit, it shall not exceed the following dimensions:
 - (a) **Depth** - 515 mm
 - (b) **Width** - 420 mm
 - (c) **Height** - 372 mm
- 5.2 When ready for use, the pump shall not exceed a weight of 34 kg (including roll frame).

6 Roll Frame

- 6.1 The portable pump shall be designed so its overall dimensions allow it to be encased and protected by a suitable roll frame, which shall be used to carry the pump assembly.
- 6.2 The roll frame shall be made of tubular steel and sheet metal.

- 6.3 The roll frame shall be finished by powder coating signal red.
- 6.4 With the pump fitted, the frame shall not impede the access of any of the pump's controls or features, required for its normal operation or routine service/ maintenance.
- 6.5 A label denoting the pump and roll frame together is to be a two person lift, shall be affixed to the roll frame in a highly visible position.
- 6.6 The lettering shall be white in colour on a clear background, and shall measure at least 14 mm in height.
- 6.7 The roll frame shall be constructed to the dimensions as shown in drawing no. ENG00001-EQP-10402 in Annex A of this specification.

Note: As shown in drawing EQP-10402, the base requires slots.

- 6.8 The pump and roll frame shall be supplied as one unit.

7 Mounting Plate

- 7.1 The mounting plate shall be constructed from hot dipped galvanised steel to the dimensions as shown in drawing no. ENG00001-BRK-2421 in Annex A of this specification.
- 7.2 The mounting plate shall be supplied separately and quoted for separately.

8 Manual and Spare Parts List

- 8.1 The pump shall be supplied with a comprehensive operating and maintenance manual included.
- 8.2 The manual shall also include a list of recommended spare parts for the pump.

ANNEX A

1 Drawings

1.1 The following drawing is provided:

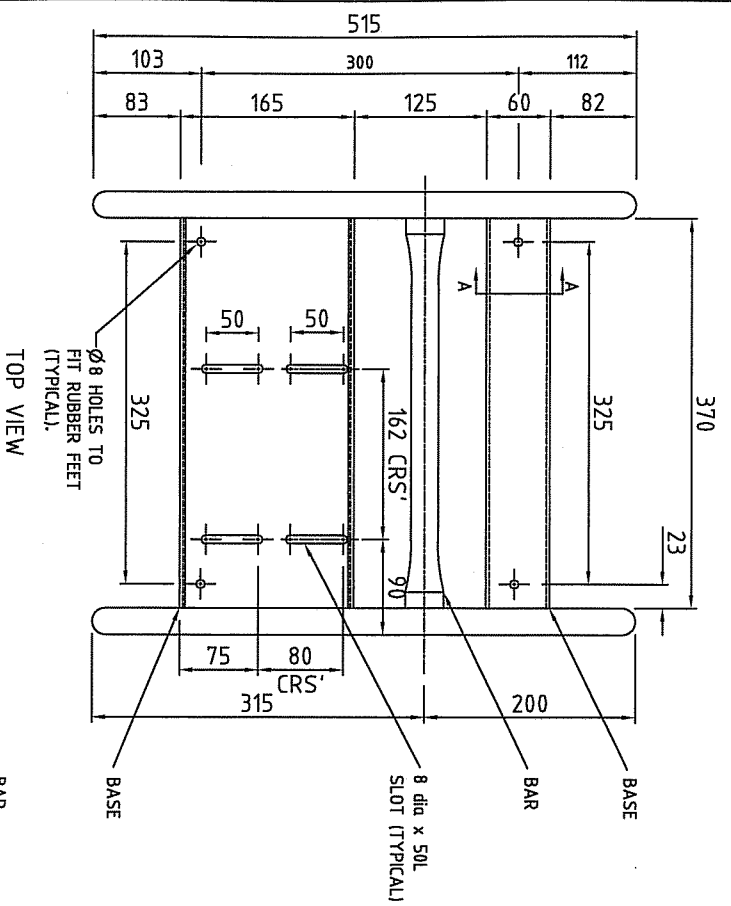
	TITLE	DRAWING NUMBER
1.1.1	Roll Frame for Portable Pump	ENG00001-EQP-10402 Version 02
1.1.2	Portable Pump Frame - Base Securing Plate	ENG00001-BRK-2421 Version B

CHANGE SUMMARY		
CHANGE VERSION NUMBER	DETAILS OF CHANGE (ITEM - ZONE)	DRAWN/DATE APPROVED BY SIGN/DATE
02	O/A HEIGHT INCREASED TO 375	VM 28-07-08 MP 29-07-01

DIMENSIONS IN MILLIMETERS

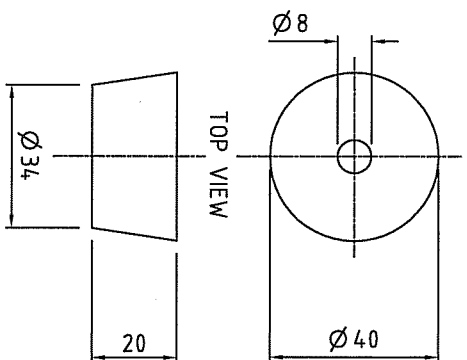
CHANGE SUMMARY

9

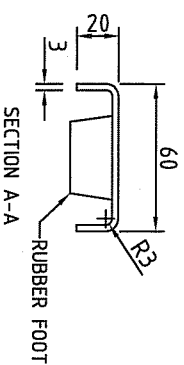


TOP VIEW

BAR

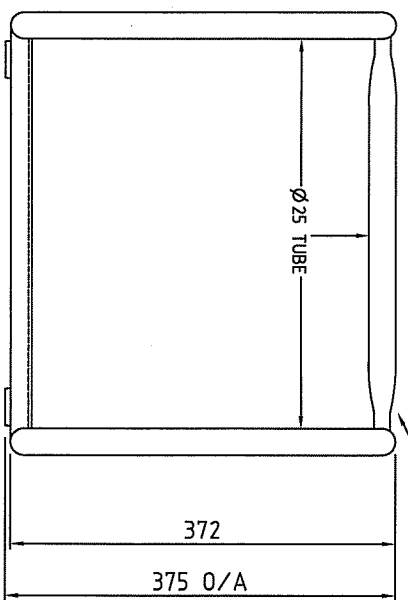


RUBBER FOOT - 4 OFF
(FASTENED TO BASE PLATE.)

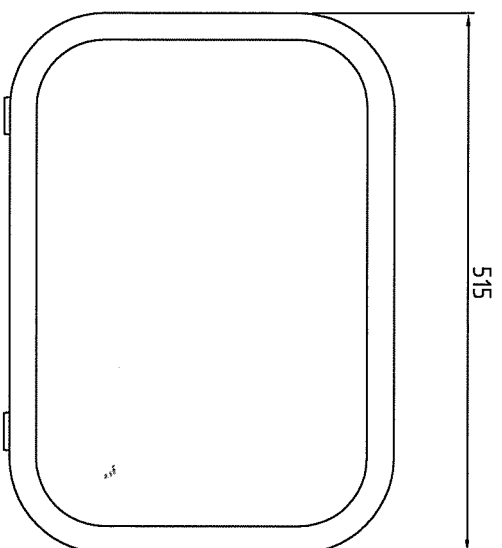


SECTION A-A

RUBBER FOOT



FRONT VIEW



SIDE VIEW


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THIS DOCUMENT REMAINS THE PROPERTY OF NSW FIRE BRIGADES
AND MUST NOT BE RETAINED, COPIED OR USED WITHOUT THE
PERMISSION OF NSW FIRE BRIGADES IN WRITING

NOTE - THE PUMP/ENGINE COMBINATION OFFERED SHALL NOT EXCEED THE FOOTPRINT OF THE UNIT CURRENTLY IN SERVICE AT THE NSWFB

NOTES:

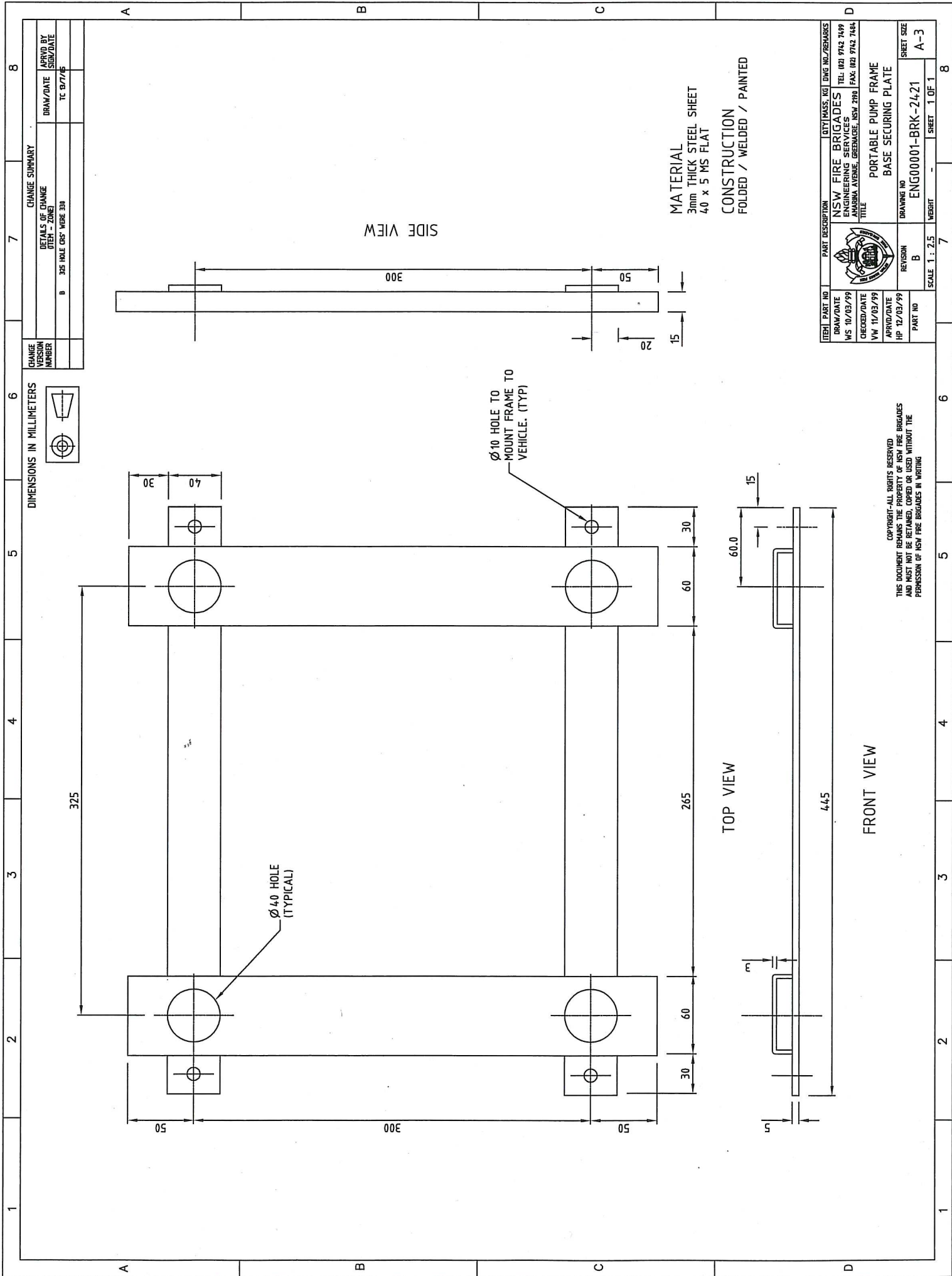
- 1) MATERIAL Ø25 x 2 mm STEEL
TUBE AND 3 mm THICK STEEL SHEET
2) WELDED CONSTRUCTION AND
PAINTED RED.

DRW. DATE	DATE	PART DESCRIPTION	DAY	MO	YR	NO. OF SHEETS
10/24/18	10/24/18	NSW FIRE BRIGADE ENGINEERING SERVICES AUSTRALIAN SERVICE, NSW 2145	TEL NO	FX	MOB	1
W/ 24/18/18	W/ 24/18/18	TITLE	10/24/18	10/24/18	10/24/18	1
DESIGNED BY	W/ 24/18/18	ROLL FRAME - PORTABLE PUMP	10/24/18	10/24/18	10/24/18	1
W/ 24/18/18	W/ 24/18/18	WITH 5.5 hp ENGINE	10/24/18	10/24/18	10/24/18	1
APPROVED BY	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
W/ 24/18/18	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
PART NO	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
REVISION	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
02	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
SCALE	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
1:5	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
VEHICLE	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
ENGINEERING NO	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
ENG00001-EAP-104.02	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
SHEET SIZE	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1
A-3	W/ 24/18/18		10/24/18	10/24/18	10/24/18	1

	REVISION 02	SCALE 1: 5
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NSW FIRE BRIGADES		1/11/11 Product And Unit No. 12/11/11	
ENGINEERING SERVICES		TEL: 02 9142 9142	
MADISON AVENUE, GREENGLADE, NSW 2701		FAX: 02 9142 9142	
TITLE			
ROLL FRAME - PORTABLE PUMP			
WITH 5.5 hp ENGINE			
DRAWING NO		SHEET NO	
ENG000001-EAP-10/4/02		A	
WEIGHT		SHEET 1 OF 1	

2 7488





NSW RURAL FIRE SERVICE

TECHNICAL SPECIFICATION

ESS – 539 – 2008

FOR

FIREFIGHTING PUMPING UNITS

STAND ALONE ENGINE & PTO DRIVEN

Version 1.20

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INTRODUCTION

The NSW Rural Fire Service is charged with the responsibility for the acquisition, allocation and supply of various types of firefighting equipment, including fire pumps to the Rural Fire Service Districts throughout NSW as part of its administration duties of the Rural Fires Act 1997 of New South Wales.

Because of the diversity and application requirements within these areas, there is a need for a range of fire pump types and classifications. The pumps shall suit a specific application that is compatible with various firefighting operations.

SCOPE

This Tender is for the supply of various types of engine powered (diesel / petrol) and power-take-off (PTO) pumps to aid in the control and suppression of grass, bush, inter-urban, urban and structural fires.

This specification describes each pumpset classification, performance, design requirements and other related features.

Tenderers are advised to carefully consider each pumpset specification requirement and respond / submit their tender/s accordingly.

PUMP CLASSIFICATIONS

CLASSES OF PUMPSETS (GENERIC NAME / ENGINE FUEL or DRIVE TYPE)

BUSH AND GRASS FIREFIGHTING APPLICATIONS

- **Class 1** (Firefighter / Diesel Powered).
- **Class 2** (General Purpose (GP) / Diesel Powered).

BUSH / GRASS / URBAN INTERFACE FIRE FIGHTING APPLICATIONS

- **Class 3** (Tanker Type / Diesel Powered).

BUSH / GRASS / URBAN INTERFACE AND VILLAGE PROTECTION APPLICATIONS

- **Class 4** (Village Protection / Diesel Powered).

STRUCTURAL FIREFIGHTING APPLICATIONS

- **Class 5** (Structural / PTO Driven).

SUPPORT ONLY APPLICATIONS

- **Class 6** (Ultra Light Weight / Petrol Powered).
- **Class 7** (Portable / Petrol Powered).
- **Class 8** (Fast – Fill / Petrol Powered).

REFERENCE STANDARDS

The following standards and publications have been referenced and the applicable clauses referenced during the preparation of this specification.

All tenderers must familiarise themselves with these documents and take them into account when preparing and submitting their tender/s and sample/s.

The successful tenderers must adhere to the relevant standards / requirements of these documents / publications for the entire duration of the contract, as appropriate.

- ◆ NSW Occupational Health and Safety Act 2000 and the Regulations 2001.
- ◆ AS/NZS 1269:2005 Occupational Noise Management.
- ◆ The ISO 9000 series of Quality Standards.
- ◆ DIN 6271: As applied to the NB Power Curve of internal combustion engines.
- ◆ AS 2417:2001 Rotodynamic pumps – Hydraulic performance acceptance tests – Grades 1 and 2.
- ◆ ISO 3046-1 Reciprocating internal combustion engines – Performance.
- ◆ AS/NZS 3750.6:1995 Paints for steel structures. Part 6 Full gloss polyurethane (two-pack).
- ◆ AS/NZS 3750.10:1994 Paints for steel structures. Part 10 Full gloss epoxy (two-pack).
- ◆ AS 1627:1997 Metal finishing – Preparation and pre-treatment of surfaces.
- ◆ AS/NZS 4680:1999 Hot-dipped galvanised (zinc) coatings on fabricated ferrous articles.
- ◆ AS/NZS 2312:2002 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.
- ◆ AS 2129:2000 Flanges for pipes, valves and fittings.
- ◆ NSW Rural Fire Service Painting Code of Practice.
- ◆ NSW Rural Fire Service Paint Preparation Code of Practice.
- ◆ National Standard Of Manual Handling (NOHSC 1001-1990) and National Code of Practice for Manual Handling (NOSSC 2005-1990).

TERMINOLOGY

Throughout this document the NSW RFS refers to and uses certain terms, words and phrases that may not be familiar to all.

In some cases the terms / words identified in the document are unusual, but are essential to describe a particular component or feature regarding the design or requirement intention.

The following outlines the terminology :-

- | | |
|-----------------------|---|
| • NSW RFS (RFS) ~ | NSW Rural Fire Service. |
| • DISTRICTS ~ | Recipients of finished products ~ i.e. RFS Rural Fire Brigades. |
| • TENDERER ~ | A company, organisation or individual participating in a process and wishing to have their product/s accepted for supply under the conditions of a formal contract arrangement. |
| • TANKER CONTRACTOR ~ | A company, organisation or individual who has successfully participated in a tender and has been selected to provide their products or services regarding fabrication, construction, supply and fit, painting, assembly, etc for fire tankers for the |

- **CONTRACTOR ~** period of time nominated in a formal contract.
Supplying contractor, a company, organisation or individual who has successfully participated in a tender and has been selected to supply pumps complying with this specification for the period of time nominated in a formal contract.
- **PUMPSET ~** Firefighting pump and engine combination.
- **WET-END ~** The component (pump) that is attached to an engine or power-take-off unit and which converts water stored at atmospheric pressure into high pressure water for use in firefighting applications.
- **ENGINE PTO ~** Is the terminology used to describe a component that provides motive power to operate / drive a pump (wet-end) from a vehicle engine.
- **TENDER SAMPLE UNIT ~** A product supplied by a tenderer to be evaluated in association with a formal tender / contract.
- **PRE-PRODUCTION UNIT ~** A finished or completed product (pump-set) that is the first production model of its generation and is identical to future mass produced units of the same product.
- **STORZ FITTINGS ~** *Storz* is the Standard adopted by the NSW RFS.
The RFS only accepts *Storz* fittings that comply with the relevant DIN & ISO Standards.
- **OEM ~** Original equipment manufacturer; that is the company who originally manufactured an item of equipment (engine, pump, primer etc) and who provides product support ~ i.e. spare parts, warranty, servicing, etc.

PUMPSET APPLICATION / OPERATIONAL EXPECTATION

Each pumpset is designed for a specific application and must perform to a minimum performance expectation.

Each pumpset shall possess performance that is suitable to fulfil a particular operational role or be compatible with a particular category (size / capacity / type) of NSW RFS fire tanker or appliance.

A pump's application is based on a particular nozzle / branch flow and pressure requirements, measured in litres per minute (L/PM) and kilopascals (kPa).

The application also includes an estimate for friction loss through one (1) x length of compatible size hose.

The application for each class of pumpset is stated below :-

Class One (1) Pumpset (Firefighter)

Application:- Used as the main pumpset for a Category 9, Ultra Light Weight Tanker, up to 2 x crew persons.

Operation expectation:- Initial response, mop-up, very low intensity bush / grass firefighting and to provide support for other tankers ~ e.g. Cat 7 Tankers.

Class Two (2) Pumpset (General Purpose / GP)

Application:- Used as the main pumpset for Category 7, Light Weight Tankers (crew or single cab), between 3 and 6 crewpersons.

Operation expectation:- Crew cab version for crew transportation / changeover, initial response, low intensity bush / grass firefighting and support for other tankers (e.g. Cat 2 Tankers).
and
Single cab version for initial response, low intensity bush / grass firefighting and to provide support for other tankers larger appliances ~ e.g. Cat 2 Tankers.

Class Three (3) Pumpset (Tanker Type)

Application:- Used as the main pumpset for Category 1, Heavy Weight Tankers (single cab) up to 3 crew persons and Category 2, Medium Weight Tankers (crew/cab) up to 6 crew persons.

Operation expectation:- Cat 1 ~ Moderate intensity bush / grass firefighting situations and to provide support for other tankers~ e.g. Cat 1 Village Tankers.
and
Cat 2 ~ Moderate intensity bush / grass and interface firefighting situations and to provide support for other tankers ~ e.g. Cat 1 Village Tankers.

Class Four (4) Pumpset (Village Protection)

Application:- Used as the main pumpset for Category 1, Heavy Tanker (crew cab), up to 6 crew persons.

Operation expectation:- Village protection, urban interface and high intensity bush / grass firefighting situations and support for other tankers and appliances ~ e.g. Cat 11 Structural Appliances.

Class Five (5) Pumpset (Structural / PTO)

Application:- Category 11 Structural Appliances (crew cab), up to 6 crew persons.

Operation expectation:- Structural, village, urban interface and bush / grass firefighting situations and to provide support for any other tankers and appliances.

Class Six (6) Pumpset (Ultra Light Weight)

Application:- Used as a support pumpset only.
Also used as an auxiliary pumpset for Cat 9 and 7 Tankers.

Operation expectation:- This class of pumpset has no fire fighting ability.

Class Seven (7) Pumpset (Portable Pump)

Application:- This class of pumpset is used for support purposes only.

Also used as a portable pumpset for Cat 1, 2 and 11 Tankers / Appliances.

| Operation expectation:- This class of pumpset has no firefighting ability is used for support purposes only.

Class Eight (8) Pumpset (Fast-Fill)

Application:- Used as a support pumpset only.
Also used as a bulk / fast filling pump-set for Cat 1, 2 and 11 Tankers / Appliances.

Operation expectation:- This class of pumpset has no firefighting ability is used for support purposes only.

RESEARCH, DEVELOPMENT & PRODUCT SUPPORT

As the term of this Contract is initially three (3) years, with the possibility of two (2) x one (1) year extension options thereafter, it is expected that technology will change during this time; therefore the NSW RFS must have the ability to keep pace with any changes by way of research, development and product support.

It is also envisaged that the contractors shall have the necessary resources to perform such works and either possess, or have access to, suitable premises to perform such works ~ e.g. a modern fully equipped facility / premises; complete with pump testing apparatus.

Based on this the NSW RFS would expect successful contractors :-

- maintain good communication and a cooperative relationship with the NSW RFS
- promote and assist the NSW RFS by way of new product research and development
- support the NSW RFS with education / training forums and provide product data for training purposes
- present / represent their products at various NSW RFS forums and provide product data
- research new engine designs (especially as it relates to future emission requirements)
- research new pump wet-end designs (especially as it relates to improving performance and hydraulic efficiencies)
- be proactive with regard to promoting new pumpset packages and / or associated componentry ~ i.e. engine and wet-end combinations, primers, instruments, controls, mounting methods, materials, etc

To ensure compliance with this specification relating to aspects of the internal and external pump components visual inspections shall be conducted; therefore the NSW RFS requires that each Tenderer disassemble the pump's wet-end for each Class of pumpset tendered to perform internal wet-end compliance inspections.

Compliance inspections shall be conducted at the Tenderers premises in the presence of NSW RFS staff.

A mutually convenient time to perform this requirement will be arranged after the closing date of the Tender.

The NSW RFS also reserves the right to repeat this action at any time during the life of the Contract.

EMERGENCY SERVICE, COMPANY SUPPORT

All pump engine brands and pump wet-end brands must be well represented and supported by their parent company (OEM) with regard to service, repair, spare parts and ongoing product support.

As a minimum each brand of pump engine shall have at least four (4) nominated service, repair, spare parts agents within the State of NSW and each brand of pump wet-end shall have at least one (1) nominated service, repair, spare parts agent within the State of NSW.

Tenderers must supply 24 hour contact details for Emergency service, supply of deliverables, spare parts and emergency repairs. The 24 hour contact details must not under any circumstance be diverted to an automated voice mail or message service.

The specified availability time for Emergency requirements is four (4) hours for requests made during normal business hours and twenty four (24) hours outside these hours.

Tenderers must specify their normal business hours in the tender response.

WATER HAMMER & PULSING

While severe water hammer is discouraged it does occur.

It is normal practice to shut off a firefighting nozzle or hose line in moderate haste whilst the pump is operating at high pressure and this may cause water hammer in the hose line and pump.

The pump shall not be fitted with, or require a pressure relief device to withstand the design pressure or water hammer transients.

Based on this the tenderer must advise, in writing, the maximum safe working pressure for each pumpset case chamber.

PART 1 - PUMPSETS (GENERAL SPECIFICATIONS)

The details contained in Part 1 – Pumpsets (General Specifications) are common to all pumpsets unless noted otherwise.

1.0 ENGINES GENERAL

- 1.1 All engines shall be of internal combustion, four (4) cycle heavy duty, industrial type.

The NSW RFS seeks and encourages as many engine and wet-end combinations as is appropriate with regard to any / each class of pumpset.

e.g. ~ As the main offer for a particular Class of pumpset a Tenderer may submit a certain brand of engine however, there may be other engine brands that are also suitable for the purpose. In such cases the Tenderer may offer these as alternatives for the same Class of pumpset.

In general there shall be a main pumpset offer, complete with a particular engine brand and if alternative engine brands are offered these shall be clearly listed as a separate pricing schedule.

- 1.2 All engines shall comply with current EPA regulations and requirements.

It is envisaged that over the period of this Contract there may be changes to the EPA regulations. Therefore all engines must maintain pace with the applicable requirements at any particular time during the Contract's lifetime.

- 1.3 Engine cooling shall be via air, forced air or a combination of air / forced air and oil.

Note:- No other method of engine cooling is acceptable.

- 1.5 Preference will be given to engines that are compact, light weight and functional.

- 1.6 Engines shall be of robust design and construction to allow for efficient operation under very arduous fire-ground conditions and may include one or more of the following:-

- a) Continuous high speed, full load operation
- b) Low humidity
- c) Very high ambient temperatures (e.g. 60° C)
- d) Dense smoke
- e) Low oxygen level
- f) Elevated altitudes (e.g. 1000 metres)
- g) Extremely dusty conditions
- h) Wet weather conditions (Rain)
- i) General performance deterioration due to wear and tear factors

- 1.7 All petrol and diesel engines shall have a suitable, easily replaced and / or serviceable air cleaner, consisting of a replaceable paper inner element and / or washable oiled outer element.

- 1.8 An air cleaner "pre-cleaner" incorporating a clear plastic bowl shall also be made available as an option for diesel engines.

- 1.9 Diesel engines with air cleaners that have electrical warning devices (that indicate a blocked / partially blocked air element) shall have that warning device wired to operate a labelled warning lamp located on the control panel.

Alternately, other types of air cleaner warning devices (mechanical) which serve a similar function are also acceptable.

- 1.10 All air cleaners shall be designed to minimise the ingestion of water during wet weather operations ~ e.g. an 'up-draft' design type is suitable.
- 1.11 All air cleaners shall be designed to prevent the ingestion of embers.
- 1.12 All engines (petrol and diesel) shall have a suitable muffler / exhaust system guards to prevent personal injury and / or minimises the risk of damage to garments.
- 1.13 The NSW RFS requires that all pump engines discharge exhaust gas in an upward direction.
The exhaust shall be directed away from the air intake, controls, or any other features of the unit.
- 1.14 The exhaust system shall have a rain cap (complete with hinged flap) fitted to prevent the entry of water.
- 1.15 Engines requiring an electrical starting system shall be available in 12volt or 24volt.

Pumpset classes 2, 3 and 4 shall be available in 12 and 24 volt configurations.
Pumpset class 1 shall be available in 12volt.

All associated items (e.g. alternator, control panels, switches, lamps, etc.) will have the same voltage as the starting system.

Pricing for 12volt and 24volt system shall be supplied separately.

The technical details for the alternator output shall be submitted ~ e.g. voltage and amperage outputs.

All engines (petrol or diesel, 12 or 24 volt) shall be voltage regulated to :-

- 13.7 volts maximum output for 12 volt systems.
- or
- 27.5 volts maximum output for 24 volt systems.

- 1.16 Any electrical and electronic components must be shielded and guarded to provide waterproofing, radio interference suppression and protection from external heat and damage.
- 1.17 All petrol engines shall have electronic ignition (e.g. transistorised magneto).
- 1.18 All petrol engines shall be fitted with a fuel filter.

The filter may be fitted in either the fuel tank, the fuel line or inside the carburetor.

The fuel filter shall be easily accessed for servicing and replacement.

- 1.19 All diesel engines shall be supplied with a **(Lucas / CAV 296)** fuel filter, water and sediment separator.

The fuel filter, water and sediment separator must be the type that :-

- Has the means to provide easy installation (attach via bolting) to a suitable mounting surface.
- Has correctly matched fuel hose orifices that suit the fuel flow demand of the engine.
- Possess a clear glass or plastic fuel bowl to allow sediment or water to be easily seen.

- 1.20 For pumpset classes 2, 3 and 4 the fuel filter, water and sediment separator shall be supplied securely attached to a suitable part of the engine (crankcase, covers, shrouds, cowling, mounting frame, or as approved by the NSW RFS and must be arranged to provide easy access for servicing / replacement.

The fuel filter, water and sediment separator must also include a mounting bracket which incorporates a protective mesh shroud around the glass or plastic bowl to protect it against impact.

For pumpset class 1 the fuel filter, water and sediment separator shall be supplied separately.

- 1.21 All engine throttle controls shall be easily set throughout the whole rev range.
- 1.22 All engines shall not exceed their maximum governed engine speed as set by the engine manufacturer.
- 1.23 All engines shall possess robust engine shrouds, covers and cowlings etc that are constructed of steel, aluminium or high impact plastic material however, minimal use of plastics is desirable.
- 1.24 Clause 1.23 is not applicable to pumpset class 6.
- 1.25 All diesel engines **must continue to run** if electrical power is lost.
- 1.26 Pumpset classes three (3) and four (4) require an electrical throttle control device to be fitted to the engine to provide remote engine speed control (e.g. Warner or a direct equivalent) in addition to a manual throttle.

2.0 ENGINE POWER RESERVE FACTOR FOR SPECIFIC PUMP-SETS

- 2.1 The engine selected to provide power for a pump shall have a minimum 20% power reserve in excess of the actual pump shaft power requirement at a nominated duty point.
- 2.2 The Tenderer must advise in writing the required input shaft power for the pump at the stated duty point, at the time of tendering.
- 2.3 The engine must meet the power requirement, inclusive of the 20% power reserve factor at the specified duty point.
- 2.4 The engine power is measured by the method stated in ISO 3046/1. Reciprocating Internal Combustion Engines – Performance.

- 2.5 The engines 'B' or 'NB' curve shall be used to apply all power reserve factors.
- 2.6 Where a pump requires a certain amount of power to satisfy the 20% power reserve factor but no engine is available that provides the exact requirement; the next available (higher powered) engine shall be selected.

3.0 **NOISE ATTENUATION**

- 3.1 Each pumpset submitted for evaluation in this tender must be accompanied with a certificate outlining the noise attenuation of that particular pumpset.
- 3.2 The Australian Standard AS1269.1 – 2005 shall be used to ascertain the noise output of the pumpset/s.
- 3.3 Tenderers must provide independent noise attenuation certification accredited by NATA or a member of the Australian Acoustical Society certified laboratories. Noise attenuation certification may be subjected to re-testing at any time during the life of the Contract at the tenderers / contractors expense.
- 3.4 The test certificate shall clearly identify each pumpsets noise output, in its specified form, at maximum RPM and under full load at various distances from the unit.
- 3.5 The tests shall be done at the following distances:-
 - One (1) Metre.
 - Four (4) Metres.
 - Seven (7) Metres.
- 3.6 Noise attenuation certification may be issued by way of self certification. However, if an engine is found to exceed such certification the tender will be held responsible for rectification works and / or cancellation of contract.

Noise attenuation certification may be subjected to re-testing at any time during the life of the Contract at the tenderers / contractors expense.
- 3.7 The name, address and phone number (contact details) of the testing and certifying company must accompany each pump test sample.
- 3.8 All pumpsets supplied as part of this contract shall have a label that displays the noise emission measured in dBa at the required distances.
- 3.9 An additional warning shall also be included detailing the distance from the pump-set, advising of the requirement for hearing protection.
- 3.10 The label shall be permanently affixed to the pumpset, must be fuel and oil resistant, complete with 4.0mm white lettering (Helvetica medium) on red background.
- 3.11 Engines shall be fitted with OEM designed and fabricated sound minimisation encapsulation / shielding packages.
- 3.12 Engines fitted with aftermarket sound minimisation encapsulation / shielding may also be considered but must be accompanied with a NATA or a member of the Australian Acoustical Society certified laboratories certificate confirming the noise

attenuation.

- 3.13 Engines fitted with aftermarket sound minimisation encapsulation / shielding must also be supplied with OEM engine certification stating that the engine or any part of the engine will not, in any way, be affected by the fitting of the aftermarket sound minimisation encapsulation / shielding; e.g. the sound minimisation encapsulation / shielding shall not cause the engine to overheat or render the engine more difficult to service or conduct routine maintenance.

4.0 PUMPS GENERAL

- 4.1 The following information applies to all pumps unless otherwise stated.
- 4.2 All pumps shall have an easily visible, fuel, oil and foam resistant instruction label attached, which clearly states the pump's operating procedures.
- 4.3 All pumpsets shall be fitted with a self adhesive label which states:-

NEVER RUN PUMP DRY

The lettering shall be not less than 8.0mm in height, bold font and red lettering over a white background.

This label shall be attached to the pump in an easily visible location and shall be fuel and oil resistant.

- 4.4 All sample pumpsets supplied for tender evaluation shall be accompanied with a separate certificate stating the period (in time) it takes to achieve pump priming for the following heights :-
- Three (3.0) metres.
 - Four & Half (4.5) metres.
 - Six (6) metres.

All of the above shall be achieved without causing damage to the pump-set.

Pump classes 1, 2, 3, 4 & 5 complete with mechanical priming devices (electric or manually operated) must be capable of achieving all of the above in a dry condition, that is, commence priming with the pump's wet-end completely empty, but not operating / running.

Pump classes 6, 7 & 8 (self priming) must be capable of achieving all of the above with an amount of water inside the pump's wet-end, with the pump engine operating / running.

- 4.5 When set up at an altitude of between 0 to 100 metres above mean sea level with the suction hose and strainer empty of water but attached to the pumps suction inlet and located at the specific height above the water surface (approximately 1.0 metre) all pumpsets shall, unless otherwise noted, be capable of drafting and delivering water to the nominated duty points less the negative lift height without causing damage to the pump-set.
- 4.6 All pumpsets shall be capable of drafting water which has abrasive material held in suspension without causing any damage to the pump's impeller, internal casing, seal/s, diffuser, shaft, etc.

4.7 The maximum diameter of such material is 5.0mm for all classes of pumpsets.

4.8 NOT USED

4.9 Pump Case Chamber Housings

4.9.1 The pump housings for pumpset classes 1 through 4 and 6 through 8 shall be constructed of corrosive resistant aluminium alloy.

4.9.2 The pump housing for pumpset class 5 shall be constructed of high strength cast iron material.

4.9.3 All pump casings and associated hardware and fittings shall be pressure rated to at least 1.5 times the maximum working pressure.
E.g. ~ If a class of pumpset is capable of 1000kPa maximum closed head pressure, its safe working pressure must be at least 1500kPa.

4.10 Pump Impellers

4.10.1 All pump impellers shall be manufactured / cast as one (1) piece design and construction.

4.10.2 All pump impellers (except for the class 6 pumpset) shall be an enclosed design type.

4.10.3 Class 6 pumpsets may have an open designed impeller.

4.10.4 Pumpset classes 1, 2, 3, 4 & 5 shall be fitted with corrosive resistant bronze material impeller/s.

4.10.5 Pumpset classes 6, 7 & 8 may be fitted with corrosive resistant aluminium alloy or bronze material impeller/s.

4.11 Pump Impeller Drive Shaft

4.11.1 All pumpsets shall have the following corrosive resistant material impeller drive shaft.

4.11.2 Pumpset classes 1, 2, 3 & 4 impeller drive shaft shall be 316 grade stainless steel.

4.11.3 Pumpset class 5 impeller drive shaft shall be 17/4PH grade stainless steel.

4.11.4 Pumpset class 6 impeller drive shaft shall have a corrosive resistant drive shaft ~ e.g. the minimum materials acceptable are cast or bright / high tensile steel.

4.11.5 Pumpset class 7 impeller drive shaft shall be stainless steel.

4.11.6 Pumpset class 8 impeller drive shaft shall be corrosive resistant ~ e.g. the minimum materials acceptable are cast or bright / high tensile steel.

4.12 Pump Drive Shaft Seal/s

4.12.1 All pumpset drive shaft seal/s shall incorporate a self-adjusting ceramic / carbon faced mechanical seal.

4.13 Internal Pump Hardware

- 4.13.1 In general all internal pump hardware (bolts, nuts, washers etc) must be corrosive resistant and a type that will provide the same life expectancy as the other materials inside the pumpset wet-end, therefore all associated pump hardware shall be a minimum 316 grade of stainless steel.

5.0 PUMPSET GENERAL (PUMP WET-END AND ENGINE COMPLETE)

- 5.1 Any feature of a pumpset or engine that is capable of causing personal injury or damage to clothing / garments shall be guarded / shielded to prevent this.
- 5.2 All pumpsets shall be arranged in as compact a manner as possible.
- 5.3 All pumps / engines shall be close coupled.
- 5.4 All pumpsets shall be capable of operating on slopes of up to 15° degrees without causing damage or suffering diminished performance to either the pump or engine.
- 5.5 As all NSW RFS pumpsets may be subjected to very high demand applications, for long periods, they must display high quality, high performance, durability and innovative design.

Therefore pumpsets shall not exhibit any of the following :-

- Non compliance with the relevant EPA requirements.
- Low or poor quality, poor design features or dubious materials.
- Low or poor quality manufacturing or engineering practices

- 5.6 To ensure compliance of Clause 5.5 internal and external pump inspections shall be conducted by the NSW RFS. Therefore the NSW RFS requires that each Tenderer disassemble the pump's wet-end for each Class of pumpset tendered so that internal wet-end compliance inspections can be conducted.

These inspections shall be conducted at the Tenderers premises by NSW RFS personnel and / or personnel from NSW Department of Commerce / Procurement.

A mutually convenient time to perform this requirement will be arranged after the closing date of the Tender.

The NSW RFS also reserves the right to repeat this action at any time during the life of the Contract.

6.0 SERVICE LIFE AND MINIMUM OPERATIONAL HOURS

- 6.1 Taking into account that the majority of NSW RFS fire pumpsets and other stand alone powered appliances endure extremes in operating usage which can vary from very long periods of low or even no use, to relatively short periods (a few weeks per year) of very high speed and high demand operation.

As this type of usage can be detrimental to the product's longevity each pumpset has been specified with an engine type that possesses a certain service life expectancy to achieve the best results given the application and environment it will be operating in.

- 6.2 Pumpsets that are powered by diesel engines shall be supplied with engines that are rated for a minimum service life of **5000** operational hours before requiring replacement or overhaul.
- 6.3 Pumpsets powered by Petrol engines must be supplied with engines that are rated for a minimum service life of **1500** operational hours before requiring replacement or overhaul.
- 6.4 Clauses 6.2 and 6.3 takes into account that engines will be regularly serviced and maintained and operated as per OEM design limits and recommendations.

7.0 PAINTING OR SURFACE TREATMENT FINISHING

REFER TO “RFS PAINT CODE OF PRACTICE” ~ Annexure ‘F’.

- 7.1 For all painting requirements the NSW RFS painting code of practice shall be used as the minimum standard for painting.
- 7.2 The required standard of finish, application, paint brands and processes are outlined in the code of practice.
- 7.3 Only the paint brands, colours and codes nominated by NSW RFS are to be used as these have passed rigorous field and laboratory appraisals.
- 7.4 All Pumpset housings and wet-ends shall be painted in the colour Bush Fire Orange.
- 7.5 Pumpset engines that are OEM encapsulated for noise attenuation shall be painted in the colour Bush Fire Orange.
- 7.6 Pumpset engines that are not encapsulated shall be left natural, as supplied by the OEM engine manufacture.

8.0 HOT DIP GALVANISING

- 8.1 All components specified as requiring galvanised finish treatment shall be hot dip galvanised to AS/NZS 4680.
- 8.2 The standard galvanised colour finish may range from shiny silver to a dull grey.
- 8.3 Galvanising finish shall be smooth and even in texture.
- 8.4 Sharp protrusions, pimples, burrs, blisters or similar which are capable of contributing to product deterioration, may cause personal injury or damage to clothing / garments must be remedied ~ e.g. repaired to the Standard.
- 8.5 Other minor repairs may be carried out in accordance with AS/NZS 4680.
- 8.6 Defective galvanising such as bare spots or flaking, that expose the base material shall be unacceptable.

9.0 PUMP SERIAL NUMBERS AND BUILD DATE

- 9.1 All pump housings shall be stamped / engraved with a :-
 - serial number

- and
- build date

- 9.2 The serial number may be a series of letters or numbers or a combination of both. i.e. "ABCD or 12346" or "ABCD12346"
- 9.3 The build date shall identify the month and year of manufacture. i.e. "08/2009" or Aug/2009"
- 9.4 The serial number and the build date may be combined ~ i.e. "ABCD12346-08/2009"
- 9.5 The size of the letters and numbers shall not be less than 4.0mm high.
- 9.6 Serial numbers and build dates shall be permanently located on the pump case chamber.
- 9.7 Detachable plates (glued, riveted, screwed or bolted) displaying the serial numbers and build dates are not acceptable.
- 9.8 Contract production pumpsets supplied without a serial number and a build date will not be accepted.

10.0 TOOL KIT

- 10.1 Pumpset classes 6, 7 & 8 shall be supplied with a good quality tool kit that may be used for basic / general maintenance.
- 10.2 The tools shall be supplied in a robust type (e.g. heavy thick plastic or ducted canvas) of carry pouch.
- 10.3 As a minimum each tool kit shall contain the following :-
1 x 6mm (or similar sized) "slot" head screw driver not less than 150mm long.
1 x suitable sized "phillips" head screw driver not less than 150mm long.
1 x 150mm pair of pliers.
1 x 150mm adjustable spanner (shifter).
1 x spark plug spanner (petrol fuelled engines only).

11.0 WARRANTY

- 11.1 The minimum warranty period for all pumpsets shall be no less than 24 Months.
- 11.2 Each Tenderer shall confirm, in writing, at the time of tender this warranty period.
- 11.3 The warranty conditions must be clearly identified.
- 11.4 The warranty commencement date shall start when the pumpset is commissioned. Commissioning date (commencement of warranty) will be advised by the NSW RFS.

12.0 OPERATING AND INSTRUCTION HANDBOOK

- 12.1 Each Tenderer shall provide with each pump sample submitted, for evaluation, all the relevant information pertaining to each particular pump type ~ i.e. operating / instruction handbooks.
- 12.2 Operating / instruction handbooks shall accurately describe the methods of operating the pump and engine as well as describing the functions of each particular pump type.
- 12.3 These hand books are primarily for the pump operator's use and specifically for use in the field; therefore one (1) operating / instruction handbook must be supplied with each pumpset.
- 12.4 An operational / instruction handbook must also accompany each tender sample.

13.0 WORKSHOP REPAIR, SPARE PARTS MANUALS AND ELECTRICAL SCHEMATIC

13.1 Workshop Repair Manuals

- 13.1.2 The contractor shall be required to supply a suitable workshop repair manual upon demand.
- 13.1.3 Workshop repair manuals may be a high quality photocopy of the original and shall accurately describe both the pump and engine in a full specification break down.
- 13.1.4 These manuals are primarily for workshop repair use.
- 13.1.5 One (1) workshop repair manual shall be supplied to the NSW RFS with each pump sample submitted for tender evaluation.

13.2 Spare Parts Manuals

- 13.2.1 The contractor shall be required to supply a suitable spare parts manual upon demand.
- 13.2.2 Spare parts manuals may be a high quality photocopy of the original and shall accurately describe both the pump and engine in full schematic break down drawings.
- 13.2.3 A full part numbering system shall also be included in each manual.
- 13.2.4 These manuals are primarily used for the accurate acquisition / ordering of replacement parts associated with workshop repair use.
- 13.2.5 One (1) spare parts manual shall be supplied to the NSW RFS with each pump sample submitted for tender evaluation.

13.3 Electrical Circuit Schematic

- 13.3.1 Tenderers are required to supply a detailed and accurate electrical circuit schematic outlining the electrical circuit for each Class of pumpset offered.
- 13.3.2 The electrical circuits are primarily used for workshop repair use.

Note:- All of the above data requirements (Clauses 12.0 through 13.3.2) may also be made available to the NSW RFS via electronic media ~ e.g. CD / DVD.

14.0 PRE-DELIVERY

- 14.1 Each pumpset must be started and test-run, in a complete operational condition, complete with crankcase lubrication, fuel, control panel and primer attached etc, to ensure all components function correctly.
- 14.2 Prior to delivery, each pump-set must have a tag / notice attached stating the above has been undertaken.

This tag / notice must also confirm the date the above was undertaken.

- 14.3 Tender samples and mass produced pumpset packages supplied under Contract shall have their governor's set to an acceptable maximum speed as recommended by the engine manufacture.
- 14.4 After testing and prior to delivery, each pumpset shall be drained of all fluids, suitably prepared and packaged for shipment.
- 14.5 A "caution" or "danger" tag or sticker shall be attached to each pump-set unit stating the following:-

ENSURE PUMP IS PRIMED WITH WATER PRIOR TO STARTING
and
CHECK FLUID LEVELS (FUEL and OIL) BEFORE OPERATING

- 14.6 At any time during the Contracts life the NSW RFS may undertake an audit to ensure this process is implemented.

15.0 PUMPSET WEIGHT

- 15.1 The total (operational) weight of a pumpset shall be supplied with each sample submitted for evaluation.
- 15.2 Total (operational) weight shall be inclusive of engine crankcase lubricating oil, any/all fittings, attachments, control panel, primer, mounting kit, etc.
- 15.3 The operational weight shall exclude any packaging.

16.0 ENGINE POWER RESERVE FACTOR AND MAXIMUM SPEED PULL-DOWN

- 16.1 Each pump engine shall have adequate power and torque to drive the pump over the whole of the pump performance range.
- 16.2 The engines for pump classes 1, 2, 3 and 4 shall possess a minimum power reserve (power reserve factor) for very arduous operating conditions which may include, prolonged high demand / high speed situations, high altitude, low oxygen, high humidity, dense smoke conditions, wear and tear, etc.

This power reserve factor shall be calculated at the most commonly used duty point as outlined in clause 16.3.

- 16.3 Power reserve factors specific to each class of pumpset :-

- a) Class one (1) pumpset shall possess a minimum 20% power reserve factor at the duty point 400 litres/min @ 600 kPa.
 - b) Class two (2) pumpset shall possess its minimum 20% power reserve factor at the duty point 400 litres/min @ 800 kPa.
 - c) Class three (3) pumpset shall possess its minimum 20% power reserve factor at the duty point 600 litres/min @ 1200 kPa.
 - d) Class four (4) pumpset shall possess its 20% power reserve factor at the duty point 800 litres/min @ 1300 kPa.
 - e) Class five (5) pumpset does not require a power reserve factor.
 - f) Pumpset classes 6, 7 and 8 do not require a power reserve factor, but must have sufficient power to operate the pump at the required duty points without overloading / over-stressing the engine under maximum load.
- e.g. ~ If 20kW's of power is required at an engine speed of 2600RPM to satisfy the nominated duty point, then the applied power reserve factor (20%) shall be calculated at 24kW at the same engine speed (2600RPM).

However, if no engine is available with the exact power and speed match (24kW @ 2600RPM) then the next available engine (higher power) at 2600RPM shall be selected.

- 16.4 The Tenderer shall advise, in writing, at the time of tendering the power (in kilowatts) required to drive the pump at the nominated duty point ~ i.e. as stated in clause 16.3, a), b), c), d) and f).

16.5 Maximum Engine Speed Pull-Down

- 16.6 In addition to the duty point power reserve factor requirements listed above the following maximum allowable engine speed pull down, under full load conditions, also applies to pumpset classes, 1, 2, 3 and 4.
- 16.7 In a situation where any of the above classes of pumpsets is put under maximum operating demand (i.e. maximum unrestricted discharge / open flow / full load) the engine's speed shall not decrease (pull-down) by more than 15% from its maximum no load speed.
- 16.8 The method to test the above shall be as follows:-
- 1) Prime the pump, start the pump engine and allow to warm-up at a fast idle speed.
 - 2) With the pump in a nil flow situation (closed head) increase the pump engine to maximum speed and record the no load speed with a tachometer.
 - 3) With the pump engine continuing to operate at maximum speed open the pump's largest discharge orifice to achieve maximum unrestricted flow (full load).

- 4) At this point record the pump engine's speed again with the same tachometer.
- 5) The difference between the closed head (no load) recorded engine speed and the unrestricted discharge flow (full load) recorded engine speed is the engine's maximum pull-down which is then calculated as a percentage.
e.g. ~ If a pump engines maximum (no load) speed is 3600 RPM; it's maximum pull-down speed (under full load) shall not decrease to less than 3060 RPM (in this case 540 RPM or 15% of 3600 RPM).

16.9 Pumpset class 5 is exempt from the maximum speed pull-down requirement.

16.10 Pumpset classes 6, 7 and 8 require sufficient power to achieve not more than 20% engine speed pull-down as outlines in clause 16.8.

i.e. ~ if a pump engines maximum (no load) speed is 3600 RPM; its maximum pull-down speed (under full load) shall not decrease to less than 2880 RPM (in this case 720 RPM or 20% of 3600 RPM).

16.11 Pumpsets shall not cavitate at any point within their operating range (e.g. from idle / low speed through to maximum / full speed).

16.12 The Tenderer shall provide, in writing, at the time of tendering the power (in kilowatts) required to drive the pump at the maximum unrestricted open flow (maximum load).

17.0 PUMP AND ENGINE PERFORMANCE GRAPHS

17.1 Each pumpset sample submitted for evaluation shall include a performance and engine test sheet as stated in AS 2417:2000 and graphs as described below.

The pump and engine performance tests shall be carried out in accordance with AS 2417 grade 2.

17.2 The pump and engine performance graph layout shall be as follows:-

- a) Pump and engine performance graph shall be submitted as part of the tender's documentation; presented on suitably sized paper ~ e.g. A4 or larger size sheet of paper.
- b) Graphs shall clearly identify the following:-
 - The pump manufacturers name ~ e.g. Beta Pumps.
 - The model of pump ~ e.g. Type "658" Fire Pump.
 - The number of stages ~ e.g. 1, 2, 3, etc.
 - The brand and model type of pumps engine ~ e.g. Hatz, Ruggerini, Deutz, Honda, etc.
 - The power of the submitted pumps engine in kilowatts ~ e.g. 7kW, 16kW, 24kW, 30kW, etc.
 - The date when the pump-set's test took place, day / month / year ~ e.g. 23/3/2009.
 - The name of the organisation that undertook the pump testing ~ e.g. "Acme Pump Testing Company".
 - All relevant duty point pressures shall be stated in kilopascals (kPa).
 - All relevant flow rates shall be stated in litres per minute (LPM).

- The duty points as specified by the RFS.
 - The test conditions, including; temperature, air pressure and humidity.
 - Suction head and discharge head in metres.
- c) Horizontal lines shall indicate pressure (Kilopascals ~ kPa).
- d) Vertical lines shall indicate flow (litres per minute ~ LPM).
- e) Pressure shall be identified in 100 kPa increments.
- f) Flow rate shall be identified in 100 LPM increments.
- g) To indicate the pump's performance a line shall be drawn from the pumps maximum pressure point to its maximum flow point.
It is expected that this line will arch acutely from the pumps maximum closed head pressure point (towards the top left of the graph), to the pump's maximum output flow point (towards the bottom right of the graph).
- h) To indicate the engine's performance a second line shall be drawn.
This line shall identify the speed change (in RPM) of the engine over the whole of the pump's performance range.

It is expected that this line will arch gently from a point close to the pump's maximum closed head pressure and generally follow the pump's increasing flow and decreasing pressure to a point where the pump is operating at maximum output flow.

The engine speed variation shall be recorded in numerals in a convenient location at the right side of the graph.
E.g. record the engine's maximum engine speed (???? RPM, whatever the case may be) at the pumps maximum pressure point (closed head) point and record the engine's reduced speed (???? RPM, whatever the case may be) at the pump's maximum flow point.

- 17.3 For class five (5), PTO pumps, the tenderers shall submit curves to the NFPA 1902 and 1903 requirements.

PART 2 – ADDITIONAL ITEMS AND SPECIFICATIONS

18.0 DELIVERY MANIFOLDS AND DELIVERY OUTLETS

Pumpsets requiring a delivery manifold shall be as follows.

- 18.1 Delivery manifolds shall be constructed of cast alloy material and paint finished in the colour Bush Fire Orange as per RFS Paint Code of Practice or welded steel and galvanised finish treated.
- 18.2 Delivery manifolds shall comply with the following:-
 - a) Design pressure shall be 1.5 times the maximum pump pressure.
 - b) Each manifold assembly shall be hydrostatically tested to AS 4041-1998.
 - c) Each manifold assembly shall be paint finish treated in the colour “Bush Fire Orange” as per NSW RFS painting code of practice.
- 18.3 An alternative material ~ e.g. stainless steel, may be considered providing all of the following is adhered to:-
 - a) AS 4041-1998, Class 3.
 - b) All butt welds to be full penetration.
 - c) Each fabricated delivery manifolds assembly shall be hydrostatically tested to AS 4041-1998.
 - d) Each stainless steel manifold assembly shall be left in its natural stainless steel finish, minus the removal of any stains resulting from the welding process.
- 18.4 Tenderers shall provide written certification that delivery manifolds comply with clauses 18.2, a), b) and c) and 18.3 a), b), c) and d).

19.0 FOAM PROPORTIONING SYSTEM

- 19.1 Pumpset classes one (1) through four (4) shall be supplied with a foam proportioning system.
- 19.2 The foam proportioning system shall be an “around the pump proportioning system” design.
- 19.3 The foam proportioning system’s controls shall be fitted into the pump control panel.
- 19.4 Currently the only foam proportioning system acceptable is the “Quenchmaster” brand (refer NSW RFS Contract 292).
- 19.5 Quenchmaster foam proportioning systems are available in a variety of sizes suitable for the variety of pumpset classes outlined in this specification. The differences in flows (litres per minute and operating pressures) dictate which foam proportioning system is adopted for a particular class of pumpset.
- 19.6 The foam proportioning systems is capable of mixing a variety of different foam types ~ i.e. “A” class foams and “B” class foams.

20.0 **BALL VALVES**

- 20.1 Pumps requiring ball valves shall comply with the following (unless otherwise specified):-
- 20.2 All ball valves shall be:-
- Full bore.
 - Female / female or male / female.
 - BSP parallel thread.
 - Brass / bronze body.
 - Teflon seat.
 - Hard chrome plated or stainless steel ball.
 - Valves up to 25 mm ID may have either 'pressed metal lever' type handles or diecast 'T' type handles.
 - Valves of 38 mm ID and over shall be fitted with 'pressed metal lever' type handles.
 - Valve handles shall be covered with a durable rubber / plastic non slip hand grip.
 - Minimum working pressure rating of 2000 kPa.
 - Designed to prevent fracture under freezing conditions
- 20.3 The ball valves shall be either AAP (Maxiflo) or CIM 11.
- 20.4 Ball valves shall be attached to the pump's outlets by using a suitable "thread locking compound" which allows the fittings to be undone for replacement, service or repair with or without the use of heat.
- 20.5 The only suitable thread sealing compounds to be used, are Super Strength (24 Hour) Araldite, Loctite 577 or CIM 58-11.

21.0 **STORZ ADAPTORS / COUPLINGS / BLANKING CAPS / RETENTION CHAINS**

All pumpsets requiring *Storz* fittings shall comply with the following.

- 21.1 Pumpsets fitted with ball valves (on the delivery outlet/s) shall also be fitted with suitably sized *Storz* adaptor/s, *Storz* blanking cap/s and retention chains.
- 21.2 Pumpsets fitted with single delivery outlets shall also be fitted with suitably sized *Storz* adaptor/s, *Storz* blanking cap/s and retention chains.
- 21.3 Pumpsets requiring a fitting to be attached to the suction inlet shall be fitted with suitably sized *Storz* adaptor/s, *Storz* blanking cap/s and retention chains.
- 21.4 Each *Storz* fitting shall be attached to its host thread by using a suitable thread locking compound which allows the fittings to be undone for replacement, service or repair with or without the use of heat.
- 21.5 The only suitable thread sealing compounds to be used are Super Strength (24 Hour) Araldite, Loctite 577 or CIM 58-11.
- 21.6 The *Storz* blanking caps shall be tethered by using a suitable length of retention chain.

- 21.7 Retention chain shall be “double jack” type.
- 21.8 The retention chain shall be 14 gauge (2.00mm link diameter), zinc plated.
- 21.9 The retention chain shall be a suitable length ~ i.e. long enough to allow easy operation (removal and replacement) of the *Storz* blanking cap and short enough to prevent the *Storz* blanking cap from entangling or interfering with other components or becoming an obstruction.
- 21.10 *Storz* fittings shall be sourced from companies contracted to supply these items to the NSW RFS ~ i.e. as per NSW RFS Contract 292.
- 21.11 The most commonly used size (in millimetres) of *Storz* fittings are 25, 38, 50, 65 and 75.
- 21.12 All *Storz* blanking caps shall have a 3.0mm hole drilled into the centre of the blanking cap to prevent the pump case chamber from retaining pressure.

22.0 CARRY FRAME

Pumpset classes seven (7) and eight (8) require carry frames that comply with the following:-

- 22.1 Carry frames shall be fabricated of tubular steel incorporating a robust base mounting plate so as to allow the attachment of the pump and engine assembly.
- 22.2 Carry frames finished treatment shall be either hot dip galvanised or paint finished in the colour ‘Bush Fire Orange’. Refer Annexure ‘F’.
- 22.3 Carry frames shall completely protect the pump and engine assembly and attached *Storz* fittings, but shall also be designed as compact as possible.

The carry frame shall not impede the access of any of the unit’s controls or features required for its normal operation or routine service and maintenance.
- 22.4 Carry frames shall be to NSW RFS drawing # **RFS25 – 01 – 000 (Sheet 1 of 1)** refer Annexure ‘E’.
- 22.5 No part of the pump assembly shall extend beyond the envelope shown on the NSW RFS drawing number 25-01-000.
- 22.5 A label denoting the carry frame (complete with pumpset or genset) is a ‘Two Person Lift’ and the label shall be affixed in an obvious location on the unit.

23.0 CONTROL PANELS

- 23.1 Pumps requiring control panels shall comply to the following:-
- 23.2 Pump control panel - MINI: Refer to NSW RFS:-
 - Drawing No. 39-03-00
 - Drawing No. 39-03-01

Refer to Annexure ‘B’

- 23.3 Pump control panel - MIDI: Refer to NSW RFS:-
- Drawing No. 39-02-00
 - Drawing No. 39-02-01
- Refer to Annexure 'C'
- 23.4 Pump control panel - LARGE: Refer to NSW RFS:-
- Drawing No. 39-01-00
 - Drawing No. 39-01-01
- Refer to Annexure 'D'
- 23.5 Pump control panels shall generally include the following :-
- A suitable control panel enclosure (in at least two parts).
 - A pressure gauge.
 - A compound gauge (large control panels only).
 - An hour metre.
 - An oil pressure gauge (large control panels only).
 - An oil temperature gauge (large control panels only).
 - An ignition switch.
 - A start button.
 - A throttle control method (throttle cable or linear actuator).
 - A method of stopping the pump (ignition switch or pull cable).
 - Cable's shall have seals fitted over the end of the outer cable to prevent entry of debris and moisture between the inner and outer cable.
 - Control panel illumination (lighting).
 - Fuse block, complete with a suitable number of fuses to protect each control panel.
 - Suitable switches.
 - Foam proportioner.
 - Charge warning lamp.
 - Suitable labelling / signage.
 - Air cleaner warning device.
 - Suitable control panel mountings.
 - Fabricated in accordance with attached RFS drawings.
- 23.6 Pump control panels shall be supplied with a suitable wiring diagram.
The wiring diagram shall clearly identify all the wiring associated with the pumpset.
The minimum size the wiring diagram may be presented shall not be less than an A4 sheet.
The wiring diagram shall be securely attached to the control panel and inclosed in suitable water proof jacket / package.
- 23.7 All wiring associated with each pump control panel shall be colour coded.
- 23.8 All wiring shall be connected / terminated using high quality, corrosion resistant (automotive type) connectors.
- 23.9 All flexible hosing and attachment fittings associated with pump control panels, foam proportioners, pressure / compound gauges etc shall be high quality hydraulic type and corrosive resistant.
- 23.10 The use of low pressure plastic hosing and low quality clamps (e.g. worm drive) is not acceptable.

24.0 PRIMING AND PRIMERS

- 24.1 Self priming ~ indicates that a pump is capable of drafting water and delivering water to its duty points by means of its own in-built priming method / device. In most cases self priming pumps require the pump housing / chamber to be filled with water so as to allow this process to function.
- 24.2 Mechanical priming, hand operated ~ indicates that a pump is fitted with a manually operated diaphragm type mechanical primer pump that requires physical effort to initiate priming (draft water into the pump housing or chamber).

The primers shall be:-

- GAAM / Series 500 / 'Long Handle' (LH) / mechanical primer pump.
or
- Southern Cross / hand operated diaphragm pump.

- 24.3 Mechanical primers, hand operated must include a compatible sized isolating valve and all associated hardware.
- 24.4 Mechanical priming, electric type ~ indicates that a pump is fitted with a separate primer pump device that electrically operates a centrifugal vane type impeller which relies on a water as a both a lubricating agent and to create a low pressure zone and initiate priming (draft water into the pump housing or chamber).

The primers shall be:-

- HALE SMP / electric primer (available in both 12 volt or 24 volt).
or
- Waterous VPES / electric primer (available in both 12 and 24 volt).

- 24.5 Mechanical primers (electric type) shall include a compatible sized valve, switch assembly, associated wiring and all associated hardware.

25.0 MOUNTING KIT

Pumpsets requiring a mounting kit shall be supplied with the following:-

- 25.1 Two (2) galvanised steel angles or channels for pump-set Classes 3 & 4, and two (2) aluminium angles or channels for pumpset Classes 1 & 2 of a size and design that will adequately support the pumpset and all its fixtures and fittings.
- 25.2 Mounting kits shall also include four (4) x rubber mounts of a compatible size and design type to adequately support the pumpset but also allow flexibility of the pumpset, fixtures and fittings.
- 25.3 The rubber mounts shall be fuel, oil and foam resistant.
- 25.4 The rubber mounts shall be of compact height design and incorporate a self captive safety feature (non shear) so that the pump-set cannot be displaced in the event of high impact situation, such as motor vehicle accident / overturn.
- 25.5 The rubber mounts shall be of a suitable size and design to adequately support the pump and engine assembly and minimise shock and vibration.

- 25.6 Mounting kits shall be of a design that allows the pumpset to be easily fixed to a flat surface.
- 25.7 All the necessary hardware (nuts, bolts, washers etc.) shall be supplied with each mounting kit.
- 25.8 All associated hardware (nuts, bolts, washers, etc.) shall be high tensile and corrosion resistant.
- 25.9 Rubber mounts shall be Barry / Mackay / Silent Bloc mounts or a direct equivalent.

26.0 PUMPSET TECHNICAL DRAWINGS

- 26.1 The Tenderer shall supply high quality technical drawings of each complete pumpset tendered.
 - 26.2 The technical drawings shall clearly identify the overall dimensions (length, width, height) of the pumpset.
 - 26.3 The technical drawings shall depict five (5) individual views of the pumpset:-
 - Overhead (plan) view.
 - Left side (elevation) view.
 - Right side (elevation) view.
 - End view (power take off / flywheel / wet-end attachment point).
 - End view (engine timing cover).
 - 26.4 The drawings shall show the location of all pipe, electrical and controls connections.
 - 26.5 The drawings shall also include any clearance dimensions for service access or air flow (for cooling) requirements.
- Note:-** High quality photocopies of OEM engine dimensions are acceptable.
- 26.6 Tender samples must be supplied with suitable technical drawings.

PART 3 – PUMPSET CLASS SPECIFIC DATA

CLASS ONE (1) PUMPSET ~ (FIREFIGHTER)

27.0 ENGINE

- 27.1 The engine shall meet the requirements as stated in Part 1.
- 27.2 Engine electrical system :-
- Engines shall be available in 12 Volt.
 - Engines shall be provided with an electrical charging system (minimum 60 Watt / 5 Amp) and suitable charging circuit protection shall be included.
- 27.3 Engine start options :-
- Electric, as the primary starting method.
 - Re-coil, may be offered as a secondary starting method.

28.0 PUMP

- 28.1 The pump shall have the following minimum performance duty points tested in accordance with AS 2417 grade 2.

CLOSED HEAD / SHUT OFF PRESSURE RANGE	900 kPa to 1000 kPa
200 Litres/min @	800 kPa
400 Litres/min @	600 kPa
600 Litres/min @	400 kPa
800 Litres/min @	200 kPa

- 28.2 The pump must be single stage design.
- 28.3 The pump must be designed to allow the pumps outer case / chamber or the complete pump wet-end to be rotated about the pumps main shaft to vary the discharge outlets position ~ i.e. 90°-180°-270°-360°.
- 28.4 The pump shall be of a design type that requires external mechanical priming.
- 28.5 The pump shall have the following inlet / outlet ports:-
- **SUCTION INLET** Shall not be less than 50mm NB diameter and not greater than 65mm diameter.
 - **DELIVERY OUTLET** Shall not be less than 40mm NB diameter and not greater than 50mm NB diameter.
- 28.6 The pump suction inlet shall form part of the pump housing assembly and may be either male or female BSPT threaded.
- 28.7 The pump delivery outlet shall form part of the pump housing and shall be a flange type.
- 28.8 The discharge flange of the pumpset shall be a compatible size to a Table “D” flange; AS2129-1982.

28.9 The pump housing assembly shall incorporate a drain valve to allow the complete draining of the pumps wet-end.

28.10 The drain valve assembly shall be made of a robust material ~ i.e. brass or stainless steel.

28.11 Materials such as plastics, plastic composites used for caps, plugs or valves are not acceptable.

29.0 BALL VALVES

Not required

30.0 STORZ FITTINGS

Not required

31.0 CARRY FRAME

Not required

32.0 CONTROL PANEL

32.1 This class of pumpset shall be supplied complete with a 'MINI' control panel as stated in Part 2, clause 23.0.

33.0 PRIMER

33.1 This class of pumpset shall be supplied complete with a mechanical (hand operated) primer as stated in Part 2, clause 24.0.

34.0 MOUNTING KIT

34.1 This class of pumpset shall be supplied complete with an appropriate mounting kit as stated in Part 2, clause 25.0.

35.0 LINEAR ACTUATOR THROTTLE CONTROL

Not required

CLASS TWO (2) PUMPSET ~ (GENERAL PURPOSE / GP)**36.0 ENGINE**

- 36.1 The engine shall meet the requirements as stated in Part 1.
- 36.2 Engine electrical system :-
- Engines shall be available in 12 Volt.
 - Engines shall be provided with an electrical charging system (minimum 15 Amp, 180 Watts) and suitable charging circuit protection shall be included.
 - The RFS may have a requirement for this class of pumpset to be available in 24 Volt; therefore it will require a corresponding charging system.
- 36.3 Engine start options :-
- Electric, as the primary starting method.
 - Re-coil, may be offered as a secondary starting method.

37.0 PUMP

- 37.1 The pump shall have the following minimum performance duty points:-

CLOSED HEAD / SHUT OFF PRESSURE RANGE	1050 kPa to 1200 kPa
200 Litres/min @	1000 kPa
400 Litres/min @	800 kPa
600 Litres/min @	500 kPa
750 Litres/min @	100 kPa

- 37.2 The pump may have one or more stages.
- 37.3 The pump must be designed to allow the pumps outer case / chamber or the complete pump wet-end to be rotated about the pumps main shaft to vary the discharge outlets position ~ i.e. 90°-180°-270°-360°.
- 37.4 The pump shall be of a design of type that requires external mechanical priming only.
- 37.5 The pump shall have the following inlet and outlet ports:-
- **SUCTION INLET** Shall not be less than 65mm NB diameter.
 - **DELIVERY OUTLET** Shall not be less than 40mm NB diameter and not greater than 50mm NB diameter.
- 37.6 The pump suction inlet shall form part of the pump housing and may be either male or female BSP threaded.
- 37.7 The pump delivery outlet shall form part of the pump housing and shall be a flange type.
- 37.8 The discharge flange of the pumpset shall be a compatible size to a Table "D" flange, AS-2129-1982.

37.9 The pump housing assembly shall incorporate a drain valve to allow the complete draining of the pump wet-end.

37.10 The drain valve shall be made of a robust material ~ e.g. brass or stainless steel.

37.11 Materials such as plastics, plastic composites used for caps, plugs or valves are not acceptable.

38.0 BALL VALVES

Not required

39.0 STORZ FITTINGS

Not required

40.0 CARRY FRAME

Not required

41.0 CONTROL PANEL

41.1 This class of pumpset shall be supplied complete with a 'MIDI' control panel as stated in Part 2, clause 23.0.

42.0 PRIMER

42.1 This class of pumpset shall be supplied complete with an electric type primer as stated in Part 2, clause 24.0.

43.0 MOUNTING KIT

43.1 This class of pumpset shall be supplied complete with an appropriate mounting kit as stated in Part 2, clause 25.0.

44.0 LINEAR ACTUATOR THROTTLE CONTROL

Not required

CLASS THREE (3) PUMPSET ~ (TANKER TYPE)**45.0 ENGINE**

45.1 The engine shall meet the requirements as stated in Part 1.

45.2 Engine electrical system :-

- Engines shall be available in 24 Volt electrical systems.
- Engines shall be provided with an electrical charging system (minimum 38 Amp / 900 Watts) and suitable charging circuit protection shall be included.
- The RFS may have a requirement for this class of pumpset to be available in 12 Volt; therefore it will require a corresponding charging system.

45.3 Engine start options :-

- Electric, as the only starting method.

46.0 PUMP GENERAL

46.1 The pump shall have the following minimum performance duty points:

CLOSED HEAD / SHUT OFF PRESSURE RANGE	1400 kPa to 1500 kPa
200 Litres/min @	1400 kPa
400 Litres/min @	1300 kPa
600 Litres/min @	1200 kPa
800 Litres/min @	800 kPa
1000 Litres/min @	500 kPa
1100 Litres/min @	200 kPa

46.2 The pump may have one or more stages.

46.3 The pump must be designed to allow the pumps outer case / chamber or the complete pump wet-end to be rotated about the pumps main shaft to vary the discharge outlets position ~ i.e. 90°-180°-270°-360°.

46.4 The pump shall be of a design of type that requires external mechanical priming only.

46.5 The pump shall have the following inlet and outlet ports:-

- **SUCTION INLET** Shall not be less than 80mm NB diameter.
- **DELIVERY OUTLET** Shall not be less than 40mm NB diameter and not greater than 50mm NB diameter.

46.6 The pump suction inlet shall form part of the pump housing and may be either male or female BSP threaded.

46.7 The pump delivery outlet shall form part of the pump housing and shall be a flange type.

46.8 The discharge flange of the pumpset shall be a compatible size to a Table "D" flange, AS2129-1982.

- 46.9 The pump housing assembly shall incorporate a drain valve to allow the complete draining of the pump wet-end.
- 46.10 The drain valve assembly shall be made of a robust material ~ i.e. brass or stainless steel.
- 46.11 Materials such as plastics, plastic composites used for caps, plugs or valves are not acceptable.

47.0 BALL VALVES

Not required

48.0 STORZ FITTINGS

Not required

49.0 CARRY FRAME

Not required

50.0 CONTROL PANEL

- 50.1 This class of pumpset shall be supplied complete with a MIDI control panel as stated in Part 2, clause 23.0.

As part of the pumpsets testing procedure the pump control panel must be attached to the pump-set during the time it was tested.

The Tenderer shall confirm this in writing with their tender response.

51.0 PRIMER

- 51.1 This class of pumpset shall be supplied complete with an electric type primer as stated in Part 2, clause 24.0.

52.0 MOUNTING KIT

- 52.1 This class of pumpset shall be supplied complete with an appropriate mounting kit as stated in Part 2, clause 25.0.

53.0 LINEAR ACTUATOR THROTTLE CONTROL

- 53.1 Class three (3) pumpsets shall be fitted with a linear actuator (suitable electric throttle control device).
- 53.2 The linear actuator shall be attached to the engines throttle mechanism. The device will provide engine speed control over the whole rev range of the engine ~ e.g. from engine speed idle speed to maximum / full engine speed.
- 53.3 Either Warner Electric ~ SP12-17A16-02 (for 12 volt systems) or SP24-17A16-02 (for 24 volt systems) are the only products acceptable.

CLASS FOUR (4) PUMPSET ~ (VILLAGE PROTECTION)**54.0 ENGINE**

54.1 The engine shall meet the requirements as stated in Part 1.

54.2 Engine electrical system :-

- Engines shall be available in 24 Volt electrical systems.
- Engines shall be provided with an electrical charging system (minimum 38 Amp / 900 Watts) and suitable charging circuit protection shall be included.

- The RFS may have a requirement for this class of pumpset to be available in 12 Volt; therefore it will require a corresponding charging system.

54.3 Engine start options :-

- Electric, as the only starting method.

55.0 PUMP GENERAL

55.1 The pump shall have the following minimum performance duty points:-

CLOSED HEAD / SHUT OFF PRESSURE RANGE	1500 kPa to 1600 kPa
400 Litres/min @	1500 kPa
600 Litres/min @	1400 kPa
800 Litres/min @	1300 kPa
1000 Litres/min @	1200 kPa
1200 Litres/min @	1000 kPa
1400 Litres/min @	700 kPa

55.2 The pump may have one or more stages.

55.3 The pump must be designed to allow the pumps outer case / chamber or the complete pump wet-end to be rotated about the pumps main shaft to vary the discharge outlets position ~ i.e. 90°-180°-270°-360°.

55.4 The pump shall be of a design of type that requires external mechanical priming as a minimum.

55.5 The pump shall have the following inlet and outlet ports:-

SUCTION INLET Shall not be less than 80mm NB diameter.

DELIVERY OUTLET Shall not be less than 50mm NB diameter.

55.6 The pump suction inlet shall form part of the pump housing and may be either male or female BSP threaded.

55.7 The pump delivery outlet shall form part of the pump housing and shall be a flange type.

55.8 The discharge flange of the pumpset shall be a compatible size to a Table "D" flange, AS-2129-1982.

55.9 The pump housing shall incorporate a drain valve to allow the complete draining of the pump wet-end.

55.10 The drain valve assembly shall be made of a robust material ~ e.g. brass or stainless steel.

55.11 Materials such as plastics, plastic composites used for caps, plugs or valves are not acceptable.

56.0 BALL VALVES

Not required

57.0 STORZ FITTINGS

Not required

58.0 CARRY FRAME

Not required

59.0 CONTROL PANEL

59.1 This class of pumpset shall be supplied complete with a 'LARGE' control panel as stated in Part 2 clause 23.0.

As part of the pumpsets testing procedure the pump control panel must be attached to the pumpset during the time it was tested.

The Tenderer shall confirm this in writing with their tender response.

60.0 PRIMER

60.1 This class of pumpset shall be supplied complete with an electric type primer as stated in Part 2, clause 24.0.

61.0 MOUNTING KIT

61.1 This class of pumpset shall be supplied complete with an appropriate mounting kit as stated in Part 2, clause 25.0.

62.0 LINEAR ACTUATOR THROTTLE CONTROL

62.1 Class three (3) pumpsets shall be fitted with a linear actuator (electric throttle control device).

62.2 The linear actuator shall be attached to the engines throttle mechanism.
The device will provide engine speed control over the whole rev range of the engine ~ e.g. from engine speed idle speed to maximum / full engine speed.

62.3 Either Warner Electric ~ SP12-17A16-02 (for 12 volt systems) or SP24-17A16-02 (for 24 volt systems) are the only products acceptable.

CLASS FIVE (5) PUMP ~ (STRUCTURAL PTO)**63.0 PUMP GENERAL**

Power-Take-Off drive

63.1 The pump shall have the following minimum performance duty points:-

MINIMUM CLOSED HEAD / SHUT OFF PRESSURE	2000 kPa
400 Litres/min @	1800 kPa
800 Litres/min @	1600 kPa
1200 Litres/min @	1400 kPa
1600 Litres/min @	1000 kPa
2000 Litres/min @	400 kPa

63.1 NFPA rating 1902 and 1903 at 500 US GPM.

63.2 The pump shall be complete with gearbox.

63.3 The gearbox shall be available in various gear ratios and the Tenderer must provide a full listing of these ratios.

63.4 The pump may have one or more stages.

63.5 The pump's housing, volute and wear rings may be constructed of either bronze or alloy cast iron.

63.6 The pump's outer casing discharge outlet shall be available in opposite hand (left or right) and its impeller's direction of rotation shall be compatible with discharge outlet (i.e. available in either clockwise rotation or anticlockwise rotation).

63.7 The pump must be designed to allow the pump outer case or chamber to be rotated about the pumps main shaft to vary the discharge outlets position ~ e.g. 90°-180°-270°-360°.

63.8 The pump shall be of a design type that requires external mechanical priming.

63.9 The pump shall have the following inlet and outlet ports:-

- **SUCTION INLET** Shall not be greater than 125mm NB diameter victaulic (grooved joint) with two side 65mm NB female screwed BSP side ports or one 100mm BSP internal screwed port.
- **DELIVERY OUTLET** Shall not be greater than 80mm NB diameter.

Note:- The discharge flange of the pump-set shall be a compatible size to a Table "D" flange, AS2129-1982.

63.10 The pump's suction inlet shall form part of the pumps housing assembly.

63.11 The pump's delivery outlet shall form part of the pump housing assembly and shall be a flange type.

63.12 The pump's housing assembly shall incorporate a drain valve to allow the complete draining of the pumps wet-end.

63.13 The drain valve assembly shall be made of a material that is impact and abrasion resistant ~ e.g. brass or stainless steel

63.14 Materials such as plastics, plastic composites used for caps, plugs or valves are not acceptable.

64.0 BALL VALVES

Not required

65.0 STORZ FITTINGS

Not required

66.0 CARRY FRAME

Not required

67.0 CONTROL PANEL

Not Required.

However, if a suitable control panels is available, Tenderers may submit a sample for evaluation purposes.

68.0 PRIMER

68.1 The class of pumpset shall be supplied with an electric type primer as stated in Part 2, clause 24.0.

69.0 MOUNTING KIT

69.1 Not essential however, if supplied as part of a pump package, an appropriate mounting kit that complies with what is stated in Part 2, clause 25.0 is the minimum requirement.

70.0 LINEAR ACTUATOR THROTTLE CONTROL

Not Required

CLASS SIX (6) PUMPSET (ULTRA LIGHT WEIGHT)**71.0 ENGINE**

- 71.1 The engine shall meet the requirements as stated in Part 1.
- 71.2 The engine shall be of a capacity of not less than 40cc.
- 71.3 The engine power and torque output shall be adequate to drive the pump over the whole of the pumping range without overloading the engine during normal operating conditions.
- 71.4 Engine start options shall be:-
- Re-coil, as the primary starting method.
 - An alternative starting method shall be provided by rope after removal of the recoil cover mechanism.
- 71.5 The pumpset must include a fuel tank with a capacity sufficient to allow the pump to operate continuously (without refueling) for a period of not less than 30 minutes (½ hour).

72.0 PUMP GENERAL

- 72.1 The pump shall have the following minimum performance duty points:-

CLOSED HEAD / SHUT OFF PRESSURE RANGE	350 kPa to 450 kPa
100 Litres/min @	250 kPa
150 Litres/min @	125 kPa
200 Litres/min @	50 kPa

- 72.2 The pump shall be single stage.
- 72.3 The pump shall be of a design type that is 'self priming'.
- 72.4 The pump shall have the following inlet and outlet ports:-

SUCTION INLET	Shall be 38mm diameter.
DELIVERY OUTLET	Shall be not less than 25mm diameter.
PRIMING PORT	One (1) shall not be less than 20mm NB diameter.

- 72.5 The pump suction inlet may form part of the pump housing assembly or it may be a separate component (bolt on).

This suction inlet may be either male or female BSP threaded.

- 72.6 The pump delivery outlet shall form part of the pump housing assembly or it may be a separate component (bolt on).
This delivery outlet may be either male or female BSP threaded.

- 72.7 The pumps housing assembly shall be constructed of a material type that incorporates strength and lightness; for this reason aluminum alloy material is preferred.

72.8 The pump housing assembly shall incorporate a drain valve to allow the complete draining of the pumps wet-end.

72.9 The drain valve assembly shall be made of a material that is impact resistant.

73.0 BALL VALVES

73.1 For class six (6), 1 x 38mm ball valve shall be attached to the 38mm delivery outlet and 1 x 25mm ball valve shall be attached to each 25mm outlet.

74.0 STORZ FITTINGS

74.1 This class of pumpset requires *Storz* fittings to be attached to the suction inlet and delivery outlet.

74.2 The size of the *Storz* fittings shall be dictated by the size of the inlet and outlet ports.

74.3 Refer to Part 2, clause 21.0.

75.0 CARRY FRAME

75.1 This class of pumpset does not require a carry frame.

75.2 Despite this class of pumpset not requiring a carry frame it must be of a size that will fit into a purpose built pump locker and as such this class of pump's external dimensions must not exceed 425 mm high x 270mm wide x 390mm long.

75.2 Class 6 pumpsets shall be supplied complete with a carry handle attached to the pump and mounted in a location between the engine and pump casing.

75.3 The handle shall be low height but shall be designed so that it is easy to grasp and carry without risk of injury from any part of the pump-set.

75.4 The carry handle shall be located so that the pumpset is equally balanced whilst being carried.

76.0 CONTROL PANEL

Not required

77.0 PRIMER

77.1 This class of pumpset shall be 'self-priming'.

78.0 MOUNTING KIT

78.1 The class of pumpset does not require a mounting kit however, they must be fitted with a suitable mounting base that is capable of supporting the pump whilst it is operating; complete with suction and delivery hoses attached.

78.2 Alloy channels, angles or similar are ideal.

79.0 LINEAR ACTUATOR THROTTLE CONTROL

79.1 Not required

CLASS SEVEN (7) PUMPSET ~ (PORTABLE)

80.0 ENGINE

- 80.1 The engine shall meet the requirements as stated in Part 1.
- 80.2 The engine power and torque output shall be adequate to drive the pump over the whole of the pumping range without overloading the engine during normal operating conditions.
- 80.3 Engine start options shall be:-
- Re-coil, as the primary starting method.
 - An alternative starting method shall be provided by rope after removal of the recoil cover mechanism.
- 80.4 The pumpset must include a fuel tank with a capacity sufficient to allow the pump to operate continuously (without refueling) for a period of not less than 60 minutes (1 hour).

81.0 PUMP

- 81.1 The pump shall be a single stage design type.
- 81.2 With the pumpset, set up at sea level in an operating condition and not exceeding the engine manufacturer's maximum revolution limit, the minimum hydraulic (water) performance delivered through the pumps outlet shall be as follows:-

CLOSED HEAD / SHUTOFF PRESSURE RANGE	600 kPa to 700 kPa
100 Litres/min @	550 kPa
200 Litres/min @	450 kPa
300 Litres/min @	275 kPa
350 Litres/min @	100 kPa

82.0 PUMP AND ENGINE GENERAL

- 82.1 The pumpset shall be supplied with the following.
- 82.2 The pump shall comprise the following inlet and outlet ports:-

SUCTION INLET	Shall not be less than 40mm NB diameter.
DELIVERY OUTLETS	Two (2) shall not be less than 25mm NB diameter. One (1) shall not be less than 40mm NB diameter.
PRIMING PORT	One (1) shall not be less than 25mm NB diameter.

- 82.3 The pump suction inlet may form part of the pump housing assembly or it may be a separate component (bolt on).
This suction inlet may be either male or female BSP threaded.
- 82.4 The pump delivery outlet housing may be attached (bolted) to the pump housing or may form part of the pump case assembly.

The required delivery outlets shall be male BSPT parallel thread and shall be made of corrosive resistant material.

- 82.5 The priming port shall be fitted with either an easily removable aluminum, stainless steel or brass threaded plug or cap complete with a suitable seal ("O" ring or gasket).
- 82.6 Clauses 82.4 and 82.5 ~ Plastics and related materials are not acceptable.
- 82.7 The pump suction inlet shall be fitted with a non-return / check valve assembly that can be easily accessed for repair and servicing.
- 82.8 The pump suction inlet non-return valve assembly shall be designed to ensure the valve seals properly at a minimum longitudinal shaft angle of plus or minus 10 degrees.
- 82.9 The non-return valve assembly shall be made of a durable, corrosion resistant material.
- 82.10 The pump housing assembly shall incorporate a drain valve to allow the complete draining of the pump wet-end.
- 82.11 The drain valve assembly shall be made of a material that is impact and abrasion resistant ~ i.e. brass or stainless steel.
- 82.12 Materials such as plastics, plastic composites used for caps, plugs or valves are not acceptable.
- 82.13 The unit shall have a low noise emission factor.

83.0 BALL VALVES

- 83.1 This class of pumpset requires ball valves.
- 83.2 Ball valves shall be size compatible to the inlet or outlet port they are attached to.
- 83.3 Refer to Part 2, clause 20.0.

84.0 STORZ FITTINGS

- 84.1 This class of pumpset requires *Storz* fittings to be attached to the suction inlet and delivery outlet port/s.
- 84.2 Comparable sized *Storz* fittings shall attach to the pumpsets inlet and outlet port/s.
- 84.3 Refer to Part 2, clause 21.0.

85.0 CARRY FRAME

- 85.1 This class of pumpset requires a carry frame.
- 85.2 Refer to Part 2, clause 22.0.
- 85.3 Refer to drawing number 25 – 01 – 000; Annexure 'E'

86.0 CONTROL PANEL

Not required

87.0 PRIMER

87.1 This class of pumpset shall be 'self-priming'.

88.0 MOUNTING KIT

Not required

89.0 ELECTRIC / REMOTE CONTROL THROTTLE

Not Required

CLASS EIGHT (8) ~ (FAST FILL)**90.0 ENGINE GENERAL**

90.1 The engine shall meet the requirements as stated in Part 1.

The tender shall list as a priced option for this wet end with a diesel engine of suitable power.

90.2 The engine power and torque output shall be adequate to drive the pump over the whole of the pumping range without overloading the engine during normal operating conditions.

90.3 Engine start options shall be:-

- Re-coil, as the primary starting method.
- An alternative starting method shall be provided by rope after removal of the recoil cover mechanism.

90.4 The pumpset must include a fuel tank with a capacity sufficient to allow the pump to operate continuously (without refueling) for a period of not less than 60 minutes (1 hour).

90.5 In most cases this Class of pump-set will be ordered with a petrol fuelled engine however, there shall be instances where the exact same pump will be required with a diesel fuelled engine, therefore the Tenderer shall also provide details and pricing for both engine options.

90.6 The Tenderer is advised that a tender sample for each engine type (petrol and diesel) will be required for evaluation purposes.

91.0 PUMP GENERAL

91.1 The pump may be one or more stages in design.

91.2 The pump shall have the following minimum performance duty points:-

MINIMUM SHUTOFF / CLOSED HEAD	400 kPa
600 l/min @	200 kPa
900 l/min @	100 kPa

91.3 The pump shall be self priming.

92.0 PUMP AND ENGINE GENERAL

The pump-set shall have the following features and be supplied with the following:-

92.1 The pump shall have the following inlet and outlet ports:-

SUCTION INLET	Not less than 65mm diameter and not greater than 75mm
DELIVERY OUTLET	75mm diameter

- 92.2 The suction inlet and pressure outlet may be either attached to (bolted) or form part the pump housing, they shall be male BSP parallel thread and shall be made of corrosion resistant material such as aluminum etc.
- 92.3 Materials such as plastics, plastic composites used for caps, plugs, taps or valves are not acceptable.
- 92.4 The pump suction Inlet non-return valve assembly shall be designed to ensure the valve seals properly at a minimum longitudinal shaft angle of plus or minus 10 degrees.
- 92.5 The pump shall incorporate a brass drain tap / valve to allow the complete draining of the pump.
- 92.6 Materials such as plastics, plastic composites used for caps, plugs, taps or valves are not acceptable.
- 92.7 The pump unit shall have a low noise emission factor.

93.0 BALL VALVES

Not required

94.0 STORZ FITTINGS

- 94.1 This class of pumpset requires *Storz* fittings to be attached to the suction inlet and delivery outlet port/s.
- 94.2 Comparable sized *Storz* fittings shall attach to the pumpsets inlet and outlet port/s.

95.0 CARRY FRAME

- 95.1 This class of pumpset requires a carry frame.
- 95.2 Refer to Part 2, clause 22.0.
- 95.3 Refer to drawing number 25 – 01 – 000; Annexure 'E'

96.0 CONTROL PANEL

Not required

97.0 PRIMER

- 97.1 This class of pumpset shall be 'self-priming'.

98.0 MOUNTING KIT

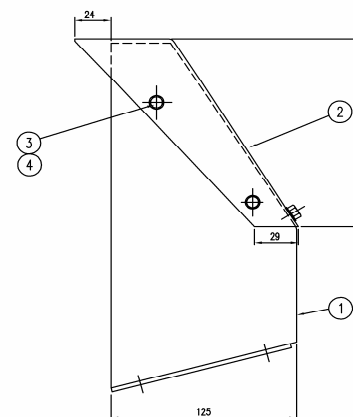
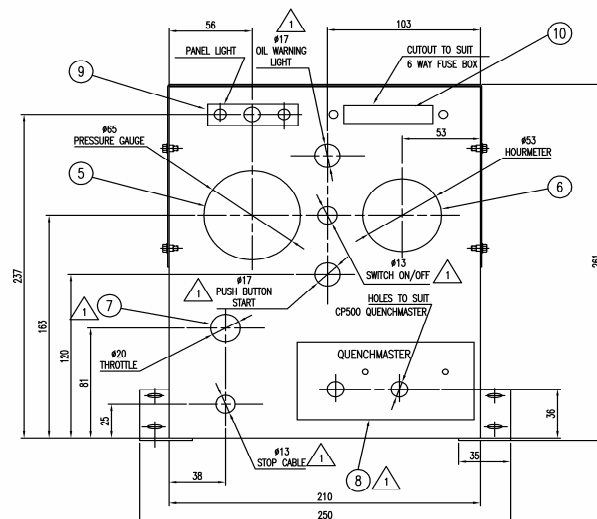
Not required

99.0 ELECTRIC / REMOTE CONTROL THROTTLE

Not Required

ANNEXURE 'A' ~ NOT USED

1	27-11-03	VD	ITEMS RELOCATED
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NOTES:

1. INSTRUMENTS/GAUGES FITTED WITH ILLUMINATION GLOBES MUST BE WIRED TO THE IGNITION ON/OFF SWITCH AND OPERATE IN CONJUNCTION WITH THE IGNITION SYSTEM
2. PANEL COVER TO BE REMOVABLE TO ALLOW FOR SERVICING
3. ALL WIRING SHALL BE PROTECTED BY USING FLEXIBLE CONDUIT, RUBBER GROMMETS & CORRECT TYPE TERMINALS/FITTINGS
4. THE HOUR METER SHALL OPERATE ONLY WHILE THE ENGINE IS RUNNING. THIS IT SHALL BE CONNECTED TO THE OIL PRESSURE SWITCH
5. THE TEMPERATURE SENDER UNIT SHALL BE INSTALLED SO THAT THE TEMPERATURE PROBE IS CONSIDERABLY SUBMERGED IN ENGINE OIL. i.e. LOCATE IN THE ENGINE SLUMP
6. ALL COMPONENTS/GAUGES SHALL BE MATCHED TO THEIR APPLICATION AND/OR ENGINE/PUMP TYPE

10	1	FUSE BLOCK HELLA P#6 8721 or ASDOWN 63-87821				
9	1	PANEL LIGHT - HELLA P#6 2559				
8	1	FOAM PROPORTIONING ASSY-QUENCHMASTER CP500				
7	1	THROTTLE				
6	1	HOURMETER				
5	1	PRESSURE GAUGE 0/1000 -WOO C458 578 006				
4	6	M6 WASHER - ZN PL				
3	6	M6x15 HEX BOLT ZN PL				
2	1 39-03-01	PANEL COVER				
1	1 39-03-01	CONTROL PANEL HOUSING				
ITEM	QUANTITY	Part No.	DESCRIPTION	SIZE	GRADE	MASS

VO

~~24-09-03~~

12

TENTATIVE

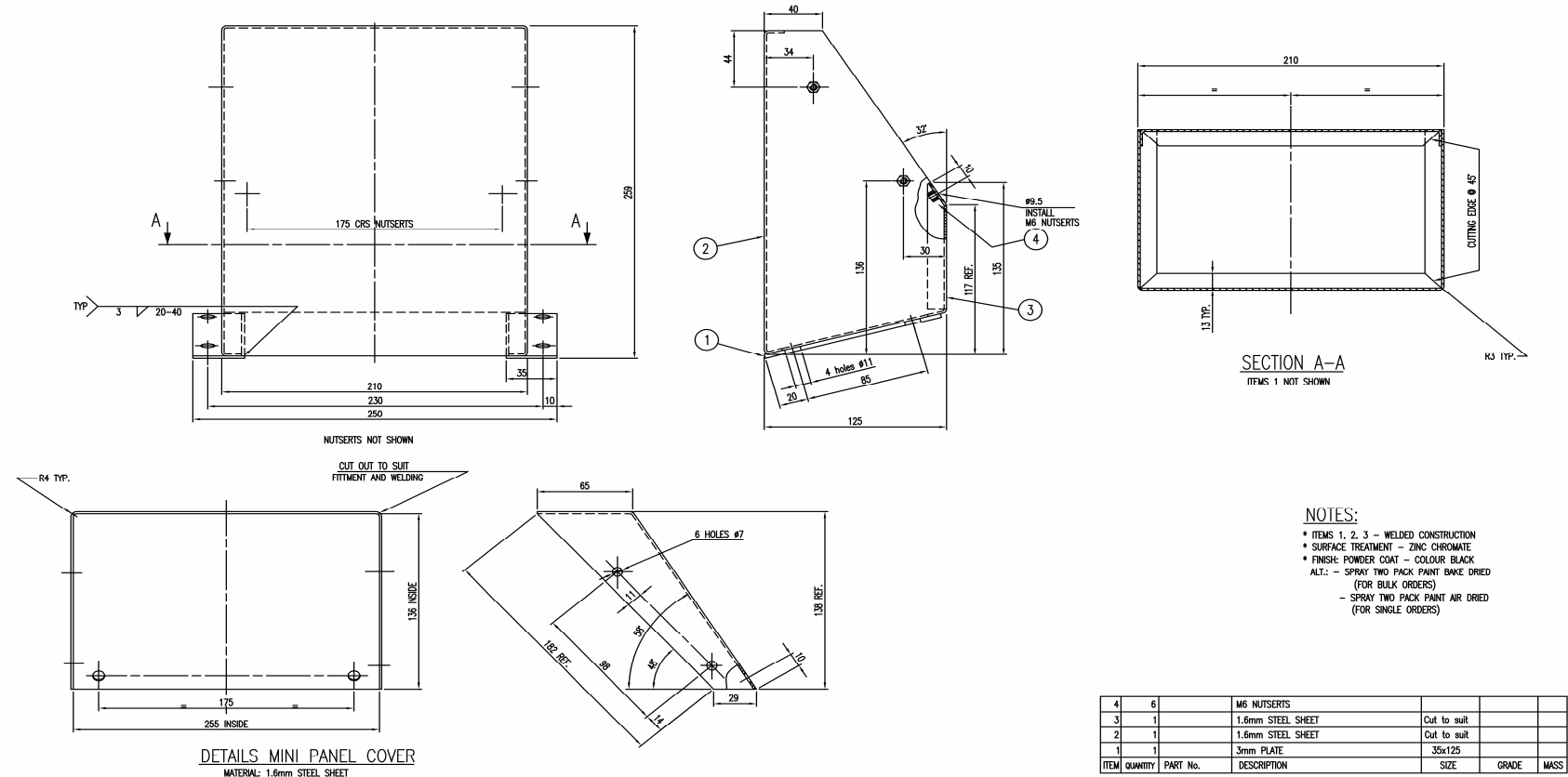
TENTATIVE

MINI PUMP CONTROL PANEL ASSY
CAT 9 - CAB TANKER

39-03-00

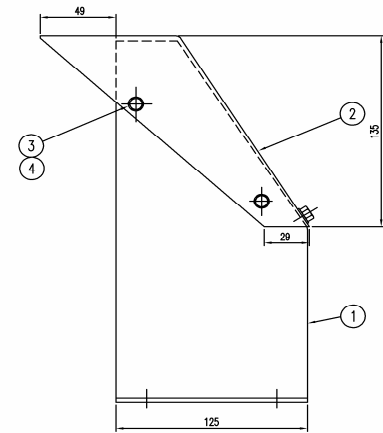
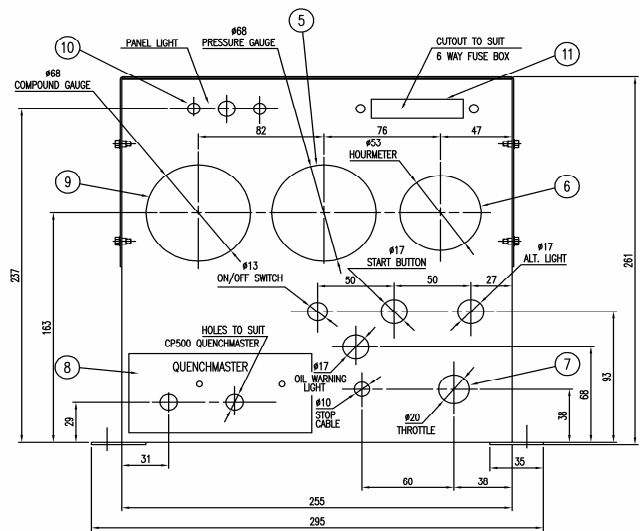
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ANNEXURE 'B' ~ 'MINI' CONTROL PANEL



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ANNEXUE 'C' ~ 'MIDI' CONTROL PANEL



NOTES:

1. INSTRUMENTS / GAUGES FITTED WITH ILLUMINATION GLOBES MUST BE WIRED TO THE IGNITION ON/OFF SWITCH AND OPERATE IN CONJUNCTION WITH THE IGNITION SYSTEM
2. PANEL COVER TO BE REMOVABLE TO ALLOW FOR SERVICING
3. ALL WIRING SHALL BE PROTECTED BY USING FLEXIBLE CONDUIT, RUBBER GROMMETS & CORRECT TYPE TERMINALS/FITTINGS
4. THE HOUR METER SHALL OPERATE ONLY WHILE THE ENGINE IS RUNNING. THUS IT SHALL BE CONNECTED TO THE OIL PRESSURE SWITCH
5. THE TEMPERATURE SENDER UNIT SHALL BE INSTALLED SO THAT THE SENDER PROBE IS CONTINUOUSLY SUBMERGED IN ENGINE OIL i.e. LOCATE IN THE ENGINE SLUMP
6. ALL COMPONENTS/GAUGES SHALL BE MATCHED TO THEIR APPLICATION AND OR ENGINE/PUMP TYPE

11	1	FUSE BLOCK HELLA P/N: 8721 or ASHDOWN 63-97821			
10	1	PANEL LIGHT- HELLA P/N: 2559			
9	1	COMPOUND GAUGE 63mm-100/5/1600 FLOYD LIQUID FILLED			
8	1	FOAM PROPORTIONING ASSY			
7	1	THROTTLE - MORSE VERNIER TYPE			
6	1	HOURMETER - VDO 331 810 012			
5	1	PRESSURE GAUGE 63mm-0/1600 FLOYD LIQUID FILLED			
4	6	M6 FL. WASHER - ZN. PL.			
3	6	M6x15 HEX BOLT ZN. PL.			
2	1	39-02-01 PANEL COVER			
1	1	39-02-01 CONTROL PANEL HOUSING			
ITEM	QUANTITY	PART No.	DESCRIPTION	SIZE	GRADE
					MASS

10

24-09-03

12

TERMINAL

TERMINAL

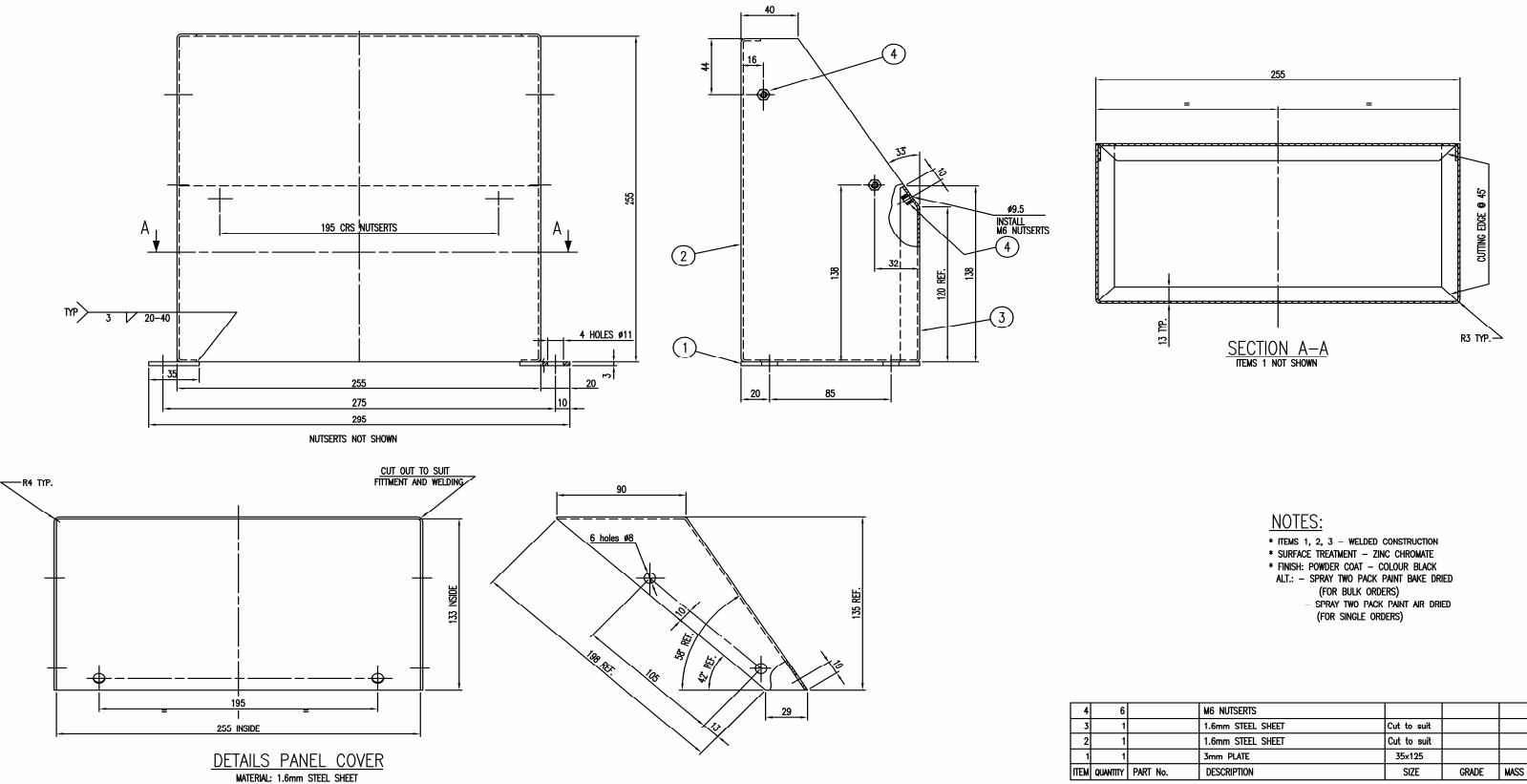
MIDI PUMP CONTROL PANEL ASSY
CAI / - CAB TANKER

39-02-00

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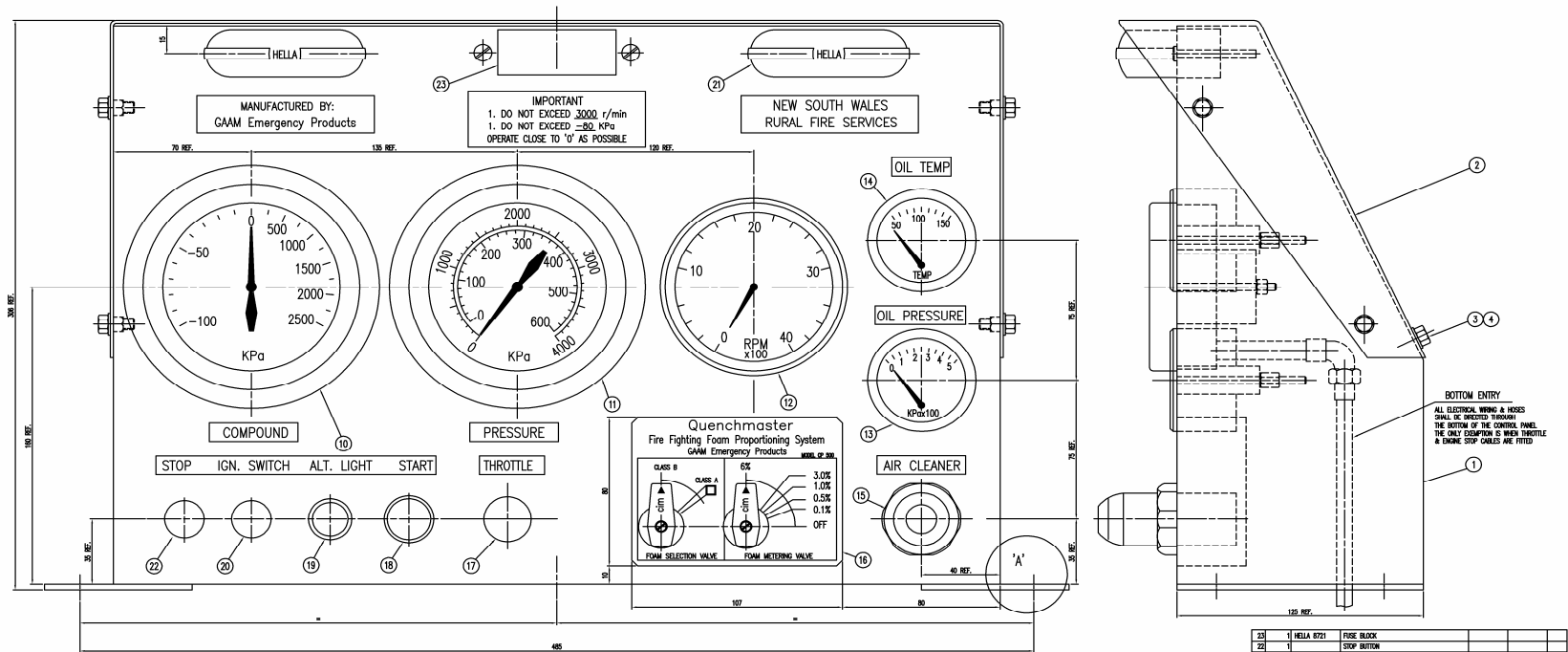
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ANNEXURE 'C' ~ 'MIDI' CONTROL PANEL



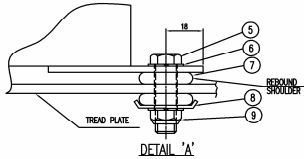
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ANNEXURE 'D' ~ 'LARGE' CONTROL PANEL



NOTES:

- * ALL LABELS SHALL BE OF WHITE LETTERING ENGRAVED INTO RED TRANSLUCENT PLATE
- * THE LABELS: SERVICE, COMPOUND, PRESSURE, THROTTLE, OIL PRESSURE, TEMP, AIR CLEANER, IGN. SWITCH, START SHALL BE OF 5mm LETTERING; ALL OTHER SHALL BE 3.5mm OR 4mm



NOTES:

1. INSTRUMENTS / GAUGES FITTED WITH ILLUMINATION GLOBES MUST BE WIRED TO THE IGNITION ON/OFF SWITCH AND OPERATE IN CONJUNCTION WITH THE IGNITION SYSTEM
2. PANEL COVER TO BE REMOVABLE TO ALLOW FOR SERVICING
3. ALL WIRING SHALL BE PROTECTED BY USING FLEXIBLE CONDUIT, RUBBER GROMMETS & CORRECT TYPE TERMINALS/FITTINGS
4. THE HOUR METER SHALL OPERATE ONLY WHILE THE ENGINE IS RUNNING. THUS IT SHALL BE CONNECTED TO THE OIL PRESSURE SWITCH
5. THE TEMPERATURE SENDER UNIT SHALL BE INSTALLED SO THAT THE SENDER PROBE IS CONTINUOUSLY SUBMERGED IN ENGINE OIL I.e. LOCATE IN THE ENGINE SUMP
6. ALL COMPONENTS/GAUGES SHALL BE MATCHED TO THEIR APPLICATION AND OR ENGINE/PUMP TYPE

ITEM	QUANTITY	PART No.	DESCRIPTION	SIZE	GRADE	MASS
25	1	HELLA 8721	FUSE BLOCK			
22	1		STOP BUTTON			
23	1	HELLA 2559	PANEL ILLUMINATION LAMP			
20	1	HELLA 4506	IGNITION SWITCH/STOP HEAVY DUTY PUSH-PULL			
19	1	HELLA 2705	LIGHT INDICATOR - ALTERNATOR			
18	1	HELLA 4506	START BUTTON			
17	1		THROTTLE			
16	1	QUENCHMASTER 07050	FOAM PROPORTIONING ASSY			
15	1		AIR FILTER			
14	1		OIL TEMP GAUGE			
13	1	WDO	OIL PRESSURE GAUGE(TO SUIT ENGINE MODEL)			
12	1	WDO 333 343	DITCHMETER 80mm 0-4000R.P.M.			
11	1	WDO OR EQUIV	PRESSURE GAUGE 100mm			
10	1	WDO OR EQUIV	COMPASS GAUGE 100mm			
9	4		WDO M16x2 NUT			
8	4		DRILLING WIGWAG			
7	4	WDOAT 07189	DOUBLE COMPRESSION NUTSLE MOUNTING			
6	8		WDO SPONGE WASHER			
5	4		WDO BOLT - 2N PL-10T			
4	7		WDO ROUND WASHER - 2N PLATED			
3	7		WDO HEX BOLT - 2N PL			
2	1	30-01-02	PANEL COVER			
1	1	30-01-01	CONTROL PANEL HOUSING			

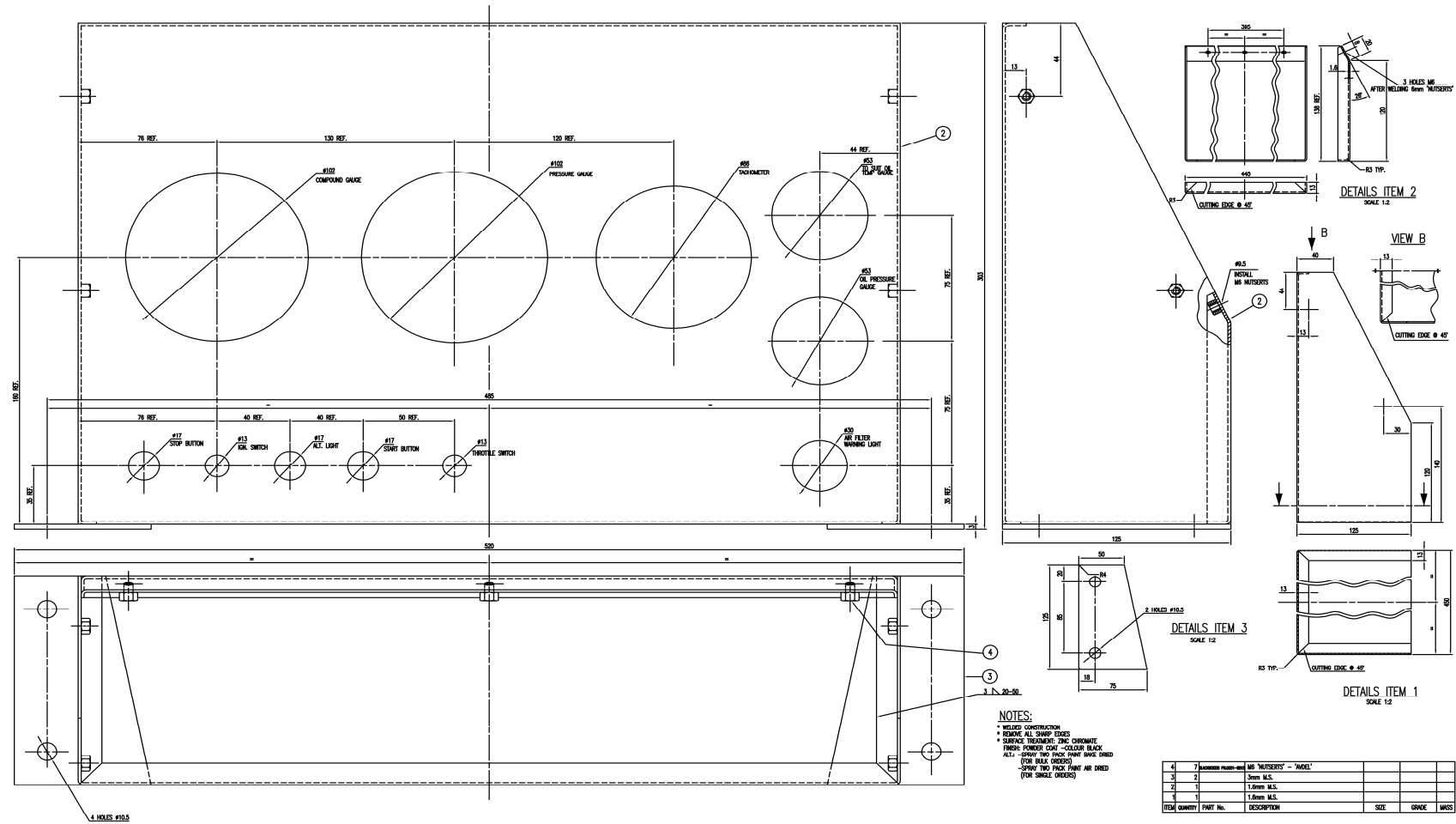
10
13-04-00
1:1
Turbine
Turbine

LARGE PUMP CONTROL PANEL
CAT 1 & 2 - CAB TANKERS

39-01-00 0

Xref C:\DPQ_APP\DPQ_V7\BLOCK\SSDA1.dwg

ANNEXURE 'D' ~ 'LARGE' CONTROL PANEL



Xref c:\DPQ_APP\DPQ_V7\BLOCK\SSTD1.dwg

VO
13-04-00 CONTROL PANEL HOUSING - DETAILS
1:1, 1:2 LARGE PUMP CONTROL PANEL
Tentative CAT 1 & 2 - CAB TANKERS
Tentative

39-01-01 0

ANNEXURE 'E' ~ CARRY FRAME

ANNEXURE 'F' ~ PAINTING & PAINTING PREPARATION CODE of PRACTICE



CODE OF PRACTICE

PAINTING

FIRE APPLIANCES AND TANKERS

No. ESP 402 - 2004

VERSION: 1.2

EFFECTIVE 22/3/2004

PAINTING

1.0 OBJECTIVE

- 1.1 The requirement to paint all or part of an item or component as shown on the relevant reference technical drawings, construction specification or as determined by the NSW Rural Fire Service (RFS).
- 1.2 As a general guide - The majority of exposed surfaces on all RFS Fire Appliance Vehicle Cabins, Fire Appliance Bodies and Associated Components, other Galvanized Water Tanks, Aluminum Chequer Tread-Plate shall be painted in accordance with this Code of Practice.

2.0 PAINT FINISH STANDARD

- 2.1 All paint finishing/re-finishing shall be to **Commercial Automotive Standard**.
- 2.2 All painting workmanship must be in accordance with best trade practice and conform to AS2602, and/or AS2603, or any other relevant standards and as recommended or required by the **Paint Manufacturer**.
- 2.3 To achieve standardization in finish, compatibility, procedures, applications, colour and quality, for both initial and re-paint situations, Two (2) Pack Painting Systems has been adopted.
- 2.4 Three (3) companies have been nominated by the RFS to supply such paint products.
- 2.5 Finished painted surfaces displaying the following shall be unacceptable:-
- Paint runs.
 - Blistering/Silicon spotting or similar.
 - Crazing/Crows feet or similar.
 - Dull or uneven finish.
 - Excessive orange peel.
 - Contamination due to dust, insect, moisture etc.
 - Discoloration of paint.
 - Poor colour matching.
- 2.6 The contractor/sub-contractor shall adhere to the Preparation, Priming, Painting Application and Finish Treatment Procedures as stipulated by the paint manufacturer.

2.7 Failure to adhere to the paint manufacturer's stipulated procedures may render the finished product unacceptable.

2.8 OH&S and EPA requirements regarding the application of such surface treatments must also be adhered to.

Notes:-

1. **All RFS painting requirements shall be undertaken inside a properly designed and ventilated spray booth suitable for the application of the types of paint/s specified.**
2. **All person engaged in painting RFS products shall be suitably attired in protective apparel as required by OH&S, EPA etc.**
3. **The painting of any RFS component that is undertaken outside, in an open environment shall be unacceptable.**

3.0 COLOUR

3.1 The majority of exposed surfaces of the RFS Fire Appliance body and related components, other than the access steps and cabin access grab handles, shall be painted in the colour "RFS Orange".

3.2 The vehicle's turret/roof and upper section of the cabin from a point to be determined shall be either left in the OEM "White" colour as supplied, or if not white, re-painted "RFS White".

Note:- Each vehicle cab/chassis, make, type will be individually paint line identified (i.e. Isuzu vehicle "paint line" will differ from Mitsubishi, Hino and/or Toyota vehicle paint lines).

3.3 All access steps and cabin access grab handles shall be painted "RFS Yellow".

3.4 All vehicle chassis (regardless of make or type) shall be re-painted "RFS Black" rearward of the vehicle's cabin.

4.0 PAINT DESCRIPTION REQUIREMENTS

4.1 Regardless of brand or supplier the description and types of RFS paint shall be as follows:-

- RFS Orange - High Gloss, Two (2) Pack Based Paint System.
- RFS Yellow - High Gloss, Two (2) Pack Based Paint System.
- RFS White - High Gloss, Two (2) Pack Based Paint System.

Note:- The above are classed as "RFS Primary" Paint Types.

- Note:-**
- RFS Black - High Gloss, Synthetic Enamel Based Paint System.
- The above is classed as an "RFS Secondary" Paint Type.**

5.0 RFS PAINT SUPPLIERS

- 5.1 Only products from the nominated paint suppliers shall be used. The RFS has identified and nominated various paint suppliers that in each case can provide quality service even in remote locations. A considerable amount of research and effort was undertaken to establish these nominated paint product suppliers and for this reason, other paint brands/manufacturers shall not be acceptable.
- 5.2 Vehicle suppliers, Pump Manufactures and Constructing Contractors shall nominate, at the time of tender or upon request from the RFS, which of the nominated brands and type of paint they intend using to finish or re-finish RFS vehicle cabins, pump wet-ends, encapsulated pump engines and other associated components (i.e. lockers, heat shields, boxes etc).
- 5.3 If a Supplier or Constructing Contractor wishes to change the brand or type of paint during the contract period, they shall obtain prior approval of the RFS, and advise; the revised brand of paint, supplier, type of paint and the reason why the change took place.

6.0 PAINT COLOUR MATCHING

- 6.1 The RFS recognises that by adopting Three (3) brands of paint products it is inevitable that slight colour variations may result however, excessive mismatch in colour or shade of colour may render the product unacceptable. Therefore nomination of the specific paint product used by the contractor is essential.

7.0 RFS NOMINATED PAINT SUPPLIERS

- **SIKKENS**
Akzo Nobel Car Refinishes Australia Pty. Ltd.
P.O. Box 5086
Garden City, Vic 3207
Tel. 03 9546 5988, Fax. 03 9644 1777
or
6 Grand Avenue
Camellia, NSW 2142
Tel. 1300 130 857, Fax. 1300 134 867
- **DU PONT (AUSTRALIA) LIMITED**
Technical Centre
P.O. Box 6424
Wetherill Park NSW 2164
Tel. 02 9757 5111, Fax. 02 9757 5130
- **PPG INDUSTRIES AUSTRALIA PTY. LTD.**

McNaughton Rd.
 Clayton, Victoria 3168
 Tel. 13 24 24 Fax. 1800 800 819

8.0 PAINT PRODUCTS REFERENCE/CODE NAMES/CODE NUMBERS

8.1 SIKKENS

8.1.1 **Paint Product :-** Topcoat System ~ Sikkens 'Autocoat BT' Solid Colour and associated products.

8.1.2 NSW RFS Orange FLAU2008

8.1.3 NSW RFS Yellow FLAU1030

8.1.4 NSW RFS White FLAU4031
 Or as per vehicle cabin ID plate
 for OEM colour matching.

8.1.5 NSW RFS Black FLAU4030

Reference:- NSW Rural Fire Service Paint System Manual
 Dated: 5th December 2003

8.2 DU PONT

8.2.1 **Paint Product :-** Topcoat System ~ 5035 'Centari' High Solid Colour and associated products.

8.2.2 NSW RFS Orange M8000

8.2.3 NSW RFS Yellow M8119

8.2.4 NSW RFS White 47601
 Or as per vehicle cabin ID Plate
 for OEM colour matching.

8.2.5 NSW RFS Black 47600

Reference:- NSW Rural Fire Service Paint Specification Manual
 4th Edition, dated October 2002

8.3 PPG INDUSTRIES

8.3.1 **Paint Product :-** Topcoat System ~ DelFleet 350 Solid Colour and associated products.

8.3.2 RFS Orange ALG 1DGR

8.3.3 RFS Yellow EFT20275

8.3.4	RFS White Or as per vehicle cabin ID Plate for OEM colour matching.	AFL KBK9
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8.3.5	RFS Black	EFT74500
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Reference:- NSW RURAL FIRE SERVICE PPG FLEET SPEC
PAINT SPECIFICATION MANUAL
COPY 1 - 11 - 2001



NSW RURAL FIRE SERVICE

CODE OF PRACTICE

**VEHICLE & COMPONENT PAINT PREPARATION
REQUIREMENTS**

No. ESP 403 - 2004

Version 1.2

EFFECTIVE 2/2/2004

For consistency over the whole range of NSW RFS Fire Appliances the following shall be adopted as the minimum standard requirement for the preparation procedure prior to painting any RFS fire appliance or tanker and associated components.

This document shall be used in conjunction with:-

- **NSW RFS Vehicle Identification Standard 8.1.2 (Version 3.0)**
and
- **RFS Code of Practice ESP 102 V 1.1**

1.0 APPLIANCE CABIN PAINTING

In general all RFS Fire Appliances (i.e. Categories 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11) shall comply with the following:

- 1.1 RFS Fire Appliances (new or second hand) shall have the upper section of the vehicle cabin left or maintained in the original OEM White colour or if supplied in another colour, other than white, shall be re-painted "RFS White".

Note:- **Wherever possible (and in most cases) "new" RFS base vehicles (cab/chassis to be converted as fire appliances) will be ordered and supplied from the vehicle manufacture painted to RFS requirements (i.e. "OEM White" colour on upper section of the cabin and "RFS Orange" on the lower section of the cabin). However, on occasion new vehicles may be supplied in a colour other than above (i.e. second hand vehicles or special "one off" orders).**

This dictates that these vehicles will need to be re-painted "RFS White" and "RFS Orange" in accordance with standard RFS livery.

In addition to this and on occasion the RFS may construct fire appliances for other Organisations/Authorities and this situation may require a completely different colour scheme.

When specific colour requirements are required these shall be purpose ordered to suit from one or more of the RFS accepted paint suppliers.

- 1.2 All RFS Fire Appliances shall have the lower section of the vehicle cabins painted in the colour "RFS Orange".
- 1.3 All RFS vehicle chassis (prior to having the fire body attached) shall be re-painted in "RFS Black".
- 1.4 The prominent colour for the majority of components attached to RFS Appliance Fire Bodies, which require painting, shall be painted in the colour "RFS Orange".
- 1.5 As the RFS uses a range of vehicle makes and models, the RFS will be responsible for identifying where each vehicle type or model is to be painted (i.e. determine at what point the White and Orange colours meet).

The term "paint-line" is used to identify this.

Note:- Each vehicle type, make or model will have a different "paint-line".

- 1.6 When a vehicle make, model or type is "paint-line" identified, all the particular run of vehicles shall be painted the same.
- 1.7 The only time the "paint-line" will alter is when a variation to a vehicle's cabin design occurs (i.e. vehicle model change, replacement or upgrade) at which point the RFS will redefine or identify the revised cabin "paint-line" requirements.
- 1.8 RFS fire appliances that are forward control (cab over engine type) vehicles (Isuzu FTS & FSS, Hino 8Z & 5Z, Mitsubishi Canter etc) shall be painted approximately centre line (50/50) top to bottom (i.e. "White" on the upper section of the cabin and "Orange" on the lower section of the cabin).
- 1.9 RFS fire appliances that are normal control (bonneted) vehicles (i.e. Toyota Land Cruisers, Nissan Patrols etc) shall have the lower sections of their cabins painted RFS Orange. The upper mudguard edges, bonnet and turret surfaces shall be left in the OEM supplied White colour.
- 1.10 All vehicle cabin doors shall be painted "RFS Orange" on the inside of the door jam on the "paint line", hence the door trims and door sealing rubbers will require removal.

Note:- In some cases the vehicle doors may also require removal to properly paint the area.

- 1.11 The rear or back panel of the vehicle cabin shall be painted "RFS Orange" but only to the point where the seams of the rear quarter (1/4) panels ("B" pillars for single cabin vehicles and "C" pillars for crew cabin vehicles) meet the rear/back panel of the cab.

Note:- There is no need to re-paint the vehicle's rear cabin panel fully.

- 1.12 Although most components attached to the RFS Fire Appliances require painting, some components shall be left in their natural base material finish or have minimal finish treatment.

2.0 TYRE PLACARD

- 2.1 All new vehicles are fitted with "Tyre Placards", as required by the Australian Design Rules.
- 2.2 Tyre placards depict vital information regarding the tyres as fitted to a particular vehicle. Information such as rim size, tyre size, ply, load and speed rating and inflation pressure/s are depicted on these placards.

- 2.3 Tyre placards usually take the form of a white sticker with black writing and are often attached to the inside of the off-side "B" pillar, near the door lock striker.
- 2.4 In some cases these placards are located in an area, which will be re-painted, hence the placards need to be removed.
- 2.5 It is vital that these placards are either "masked off" (to protect from paint over-spray) or replaced upon the completion of painting (i.e. tyre placards are available from all vehicle manufactures as a spare part item). It will be the painting and/or the construction contractor or sub-contractor's responsibility to ensure the above occurs.

Note:- Vehicles presented for final paint acceptance inspection without a tyre placard shall be rejected.

3.0 APPLIANCE CHASSIS PAINTING

- 3.1 All RFS vehicle chassis (prior to having the fire body attached) shall be re-painted in "RFS Black".
- 3.2 The chassis shall be thoroughly cleaned, de-waxed and/or repaired prior to re-painting.
- 3.3 All the chassis surfaces (top, sides (inner & outer) & bottom) of each chassis rail shall be re-painted.
- 3.4 Any section of the chassis that requires work or re-work (drilling of holes for the attachment of brackets or shortening or lengthening etc) during the course of the fabrication process shall be suitably prepared (cleaned, de-burred, primed etc) prior to re-painting.
- 3.5 Any rusted or corroded surfaces shall be fully cleaned back to the bare base material before priming and re-painting.
- 3.6 Only the section of chassis rearward of the vehicle cabin shall be re-painted.
- 3.7 To prevent paint over-spray affecting vital mechanical or electrical components, all areas not requiring painting shall be suitably covered, protected or masked.
- 3.8 No attempt shall be made to clean or re-paint the vehicle chassis, forward of, or under the vehicle's cabin.

4.0 RFS VEHICLE CABIN PREPARATION PRIOR TO PAINTING

- 4.1 Prior to any painting being commenced to an RFS Appliance the following shall be undertaken:

Remove the following external components:-

- External door handles.
- Internal door trims and associated fittings.
- Tyre Placards, if necessary.
- Identification badges, stickers, labels and escutcheons.
- Grill assemblies.
- Bumper or bull bars.
- Lamp assemblies (Head Lamps, Parking Lamps, Indicator Lamps, etc.).
- Fuel filler assemblies and associated grommet and surrounds.
- Radio antenna aerials, including plastic or rubber mounting bases etc.
- Mud flaps.
- External rear vision mirrors.
- Replace all the above when painting process is completed.

Note:- The above is a general guide and will vary dependant on the vehicle make and model. The RFS recognises that in some instances the components mentioned above may, not require removal and there may be components that have not been identified here that will require removing.

4.2 Define the "paint line" and mask off.

4.3 If applicable, lift rubbers around glassed areas (i.e. windscreens etc) and pack out so that paint can flow behind to achieve the best result.

4.4 Prepare the surface to be re-painted by washing the area and then roughing with suitable abrasive material (specified grade of wet & dry sandpaper etc).

Note:- Refer to paint manufactures manual for exact procedure.
No area of the vehicle is to be re-painted unless it has been correctly prepared.

4.5 Cover or protect Road Wheels and Tyres with cloth or paper etc. to prevent paint over-spray.

4.6 Cover or protect other areas of the vehicle that are not intended to be painted. (i.e. upper section of the vehicle cabin, the vehicle's turret, vehicle glassed areas, rear of cabin area, under bonnet, engine bay area, vehicle chassis section etc).

4.7 When the surface to be re-painted is fully prepared and roughed, it shall then be wiped clean with a suitable de-waxing solvent or solution.

Note:- Refer to paint manufactures manual for their preferred product.

4.8 If required a suitable "Undercoat or Etch Primer" shall be applied to the areas requiring re-painting prior to the finish colour being applied.

Note:- This is particularly relevant when painting an unprepared base material (steel, galvanized steel, aluminum or plastic).

Refer to paint manufactures manual for their preferred products and methods.

- 4.9 The undercoat shall also require preparation (smoothing off by rubbing with abrasive material, wet & dry, de-waxing and thoroughly cleaning) prior to applying further undercoat or the final colour.
- 4.10 As most surfaces of RFS Fire Appliances are re-painted in Two Pack Epoxy type paints, a suitably ventilated area or approved spray paint booth shall be required to undertake re-painting.
- 4.11 Spray paint booths must be of an adequate size to accommodate the whole vehicle (the cab and chassis, full length and width) without any part of the vehicle protruding from the booth.
- 4.12 Unavoidable over-spray as occurs in areas such as wheel arches shall be repaired by repainting the area in the same colour as OEM supplied. In most cases "Black" will be adequate.
- 4.13 When the vehicle cabin painting is completed (White upper, RFS Orange lower) and allowed to fully dry or cure the painting contractor shall rub flat, using suitable abrasive material (wet & dry) the dividing line of the Two (2) colours (the "paint line"). This is necessary to provide a flat surface to attach the "Red & White" reflective tape.
- Note:- As the reflective tape is relatively narrow (in some cases 40mm wide) care must be taken to minimise the rubbing width so as not to adversely effect the paint quality above and below where the reflective tape will be attached.**
- 4.14 The final process of painting the base cab chassis shall be to thoroughly wash and dry (chamois) the area of the vehicle which has been painted and inspect for quality of the finish, colour match and that no imperfections are evident.

5.0 ACCESS STEPS & ACCESS GRAB HANDLES

- 5.1 All RFS Fire Appliance Body "Access Steps and Access Grab Handles" shall be re-painted "RFS Yellow".

6.0 COMPONENTS NOT REQUIRING PAINTING

- 6.1 Unless otherwise specified the components which do not require paint finishing are as follows.
- All Aluminum Chequer Plate.
 - Galvanized Water Tanks.
 - Galvanized Platform Tray Frames.

- Aluminum Platform Tray Frames.
- Any other galvanized or plated metallic components.
- Plastic components (including wiring and lights). Except where plastic body components are originally painted by the OEM.
- Any other non-metallic components.
- Drip Torch Holders, for all Categories of Appliances.
Natural aluminum finish or acid washed as required.
- Standpipe Brackets, for all RFS Categories of Appliances.
Dependent on material type (aluminum or steel):
Natural aluminum finish or acid washed as required.
or
Natural Galvanized Finish.
- Fire Extinguisher Bracket, for all Categories of Fire Appliances.
Dependant on material type (aluminum or steel):
Natural aluminum finish or acid washed as required.
or
Natural Galvanized Finish.
- The Knapsack/s Holder/s for Category One (1) Tankers only.
Natural Galvanized Finish.
- The Foam Pail Holder/s for Category One (1) & Two (2) Tankers.
Natural Galvanized Finish.
- All rigid (metallic) and flexible Pipe-work or Plumbing Assemblies and associated Components, for all Categories of RFS Appliances.
Natural Galvanized Finish for pipe-fittings and natural finish for all valves, valve fittings, hose etc.

7.0 COMPONENTS REQUIRING PAINTING

- 7.1 Unless otherwise specified the components that **do** require paint finishing are as follows.
- 7.2 Pump-sets:- All RFS Fire Pump "Wet-Ends" (pump housings) regardless of type or brand or size shall be painted as follows:-
- Paint pump housings and coupling flange components to the point where engine attachment occurs.
 - Colour:- "RFS Orange".
- 7.3 Pump Drive Engines:- RFS Pump-set Drive Engines shall be painted as follows:-
- Paint only encapsulated, silenced packaged engines.

- Colour:- "RFS Orange".

- Notes:-**
1. **At present only Hatz and Deutz brand "Silent Pack Type" Diesel Engines require re-painting and will be supplied in the finished colour (RFS Orange) from the pump supplier.**
 2. **All other non-encapsulated engines (exposed, petrol or diesel fueled) do not require re-painting and shall be left as per OEM supplied finish.**

- 7.4 Aluminum Water Tanks:- All RFS Categories of Appliances fitted with aluminum water tanks.
- Paint external surfaces only:- Front, Rear and Side Panels only.
 - Colour:- "RFS Orange".

- 7.5 Equipment Lockers:- All Categories of RFS Appliances.
- Paint external surfaces only:- Top, Rear and Side Panels.
 - Colour:- "RFS Orange".

- Notes:-**
1. **Equipment Locker Swing Opening Doors must be painted (external surface only).**
 2. **Equipment Locker Roller Shutter Doors must not be painted and shall be left in their natural finish.**

- 7.6 Equipment Boxes:- All RFS Categories of Appliances.
- Paint external surfaces only:- End and Side Panels and Lift -Up Door Lid assembly.
 - Colour:- "RFS Orange".

- 7.7 Heat Shields:- All RFS Categories of Appliances.
- Paint external and internal surfaces of the heat shield panel.
 - Colour:- "RFS Orange".

Note:- Heat Shield Frames shall be left natural galvanized finish.

- 7.8 Jerry Can Holders:- All RFS Appliances shall be painted RFS Orange.

Note:- Jerry can holders fabricated for the current Category One (1) Tankers incorporate "Aluminum Chequer Plate" and this material shall be left natural.

- 7.9 Knapsack Holders:- applies to RFS Categories 2, 3, 4, 5, 6, 7, 8 & 9 Tankers.
- Paint external surfaces only:- Rear and Side Panels and the Swing Opening Door assembly.
 - Colour: "RFS Orange".

- Notes:-**
1. **Do not paint door hinges.**
 2. **Knapsack Holders fabricated for the current Category One (1)**

Tankers incorporate "Galvanised Steel Treated Material" and this material shall be left natural.

- 7.10 Jerry Can Holders:- RFS Categories 1, 2, 3, 4, 5, 6, 7, 8 & 9 Tankers.
- Paint external surfaces only:- Rear and Side Panels and the Swing Opening Door assembly.
 - Colour:- "RFS Orange".

Note:- Do not paint door hinges.

8.0 COMPONENT PREPARATION PRIOR TO PAINTING

- 8.1 In general, the components requiring painting as identified in Section 7 shall be prepared as follows:-

- 8.2 Aluminium based components shall require smoothing, de-burring, cleaning and de-greasing prior to any surface treatment being applied.
Refer to paint manufactures specifications.

Note:- Remove or repair any deposits of corrosion.

- 8.3 In many cases aluminium surfaces may also require etch priming prior to undercoating.

- 8.4 In all cases RFS aluminium components, requiring painting, shall be painted on their external surfaces only, hence the internal surfaces will need to be covered or masked off to protect against over spray.

- 8.5 To ensure a good quality paint finish, the painting of the edges of RFS components is required.
Components such as; Equipment Lockers, Swing Opening Doors, Foam Pail, Knapsack and Jerry Can Holders shall have adequate paint coverage over all edges and minimal coverage on the internal surfaces.

Note:- This will require the masking off of internal surfaces to a distance on the internal surface of not more than 10mm.

- 8.6 Non galvanized steel components shall require smoothing, de-burring, cleaning and degreasing prior to any surface treatment being applied.

Note:- Remove or repair any deposits of rust or other corrosion.
Refer to paint manufactures specifications.

- 8.7 Plastic materials may require specific preparation.
Refer to paint manufactures specifications.

For further information or in the event that this documentation does not cover a specific paint application, additional clarification can be sought via the appropriate RFS Engineering Services Project Officer. "If in doubt, ask"
NSW RFS contact numbers are as follows :-

- NSW RFS Head Office:- 02 8741 5555
- RFS Engineering Services Section:- 02 8741 5200 / 02 8741 5215